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PAPER TRADE JOURNAL

VOL. 122 NO. 16 APRIL 18, 1946

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Southland Mill to Double Its Output
Midwest Would Eliminate Controls
Ethurst Sales at Record Peak
Paperboard Industry Asked to Aid Gypsum
Newsprint Production High in March
Hear Brown Rejects 20 Million Bid
Eagle Lodge Seeks 12½ Cents

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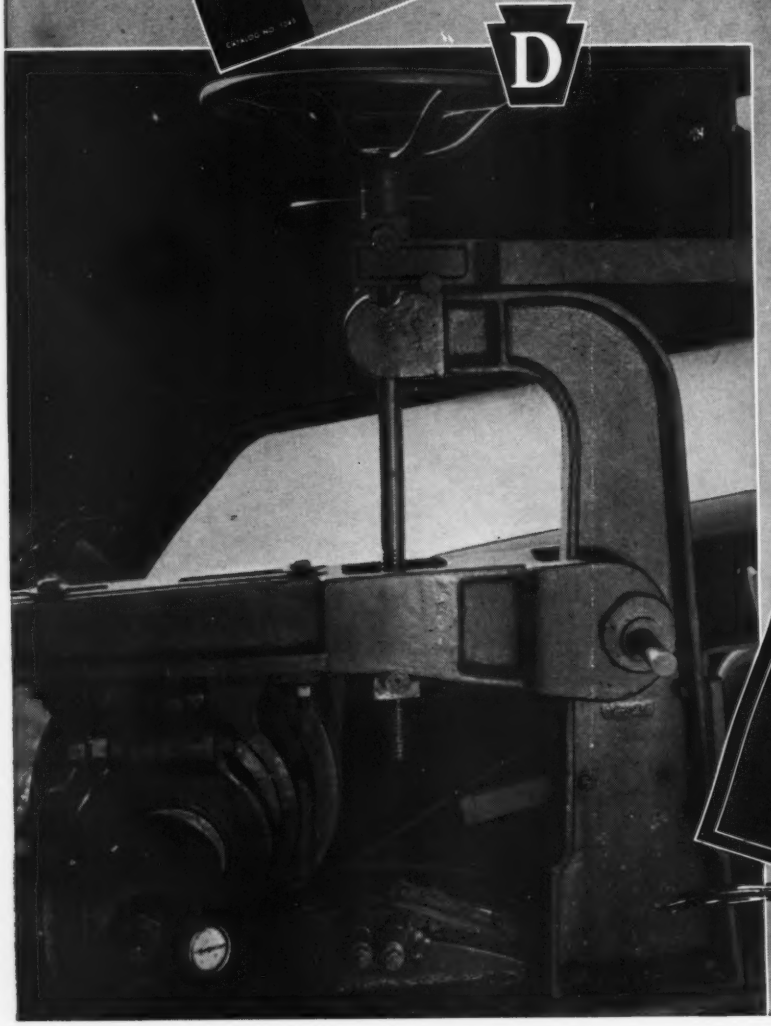

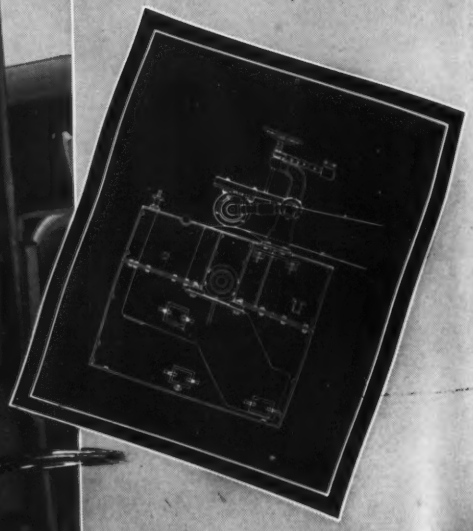

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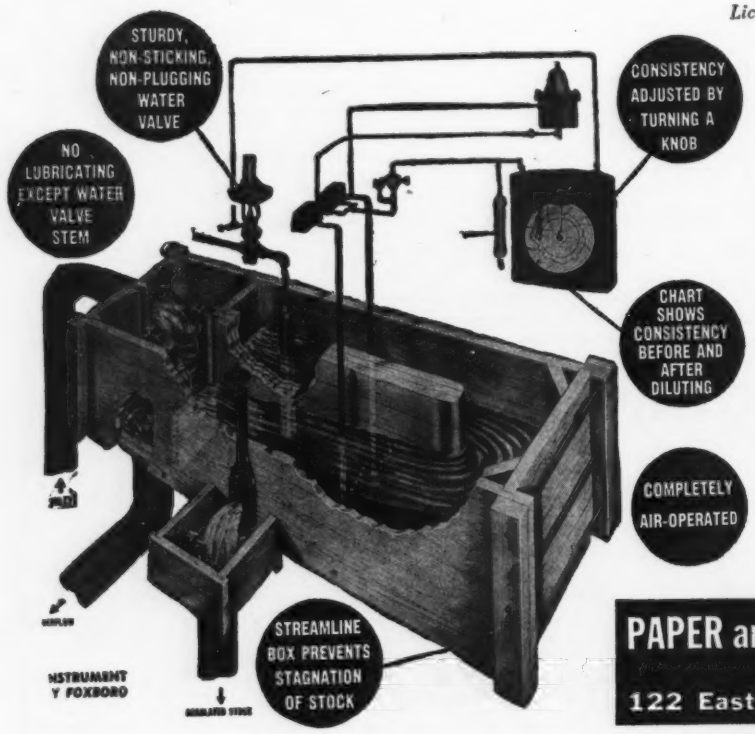
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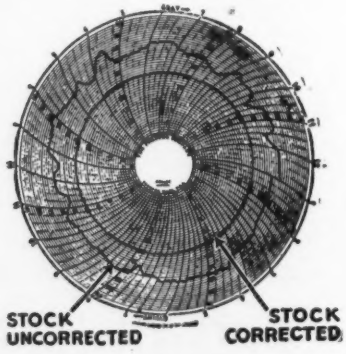

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PAPER TRADE JOURNAL
Vol. 122, No. 16 April 18, 1946

OPA Lifts Woodpulp Ceiling Approximately Ten Per Cent

WASHINGTON, D. C.—The Office of Price Administration late last week announced plans to increase producers' ceiling prices for woodpulp about ten percent within ten days to stimulate production.

The increase in prices is expected to bring an additional return to producers of between $17,000,000 and $19,000,000 a year. The proposed adjustments range from $3 to $9 a ton on standard grades comprising eighty percent of market wood pulp and from $4 to $12.50 on special grades representing three percent of market woodpulp. The agency stated that no increase will be allowed on special grades representing the remaining seventeen percent, as these already have been adjusted on an individual basis.

The same action, on the other hand, reduced by $1 a ton maximum transportation charges, payable by sellers of wood pulp, for all domestic and Western Canadian producers, $2 for Eastern Canadian producers, and $3 for overseas producers. These reductions, explained OPA, are designed to help distant consuming mills to compete for supplies with nearer supply sources.

The specific increases on standard are as follows: bleached and unbleached sulphite and soda pulp, Northern bleached sulphate and ground wood $8 a ton; Southern bleached sulphate, $9; Southern unbleached sulphate, $6; and Northern unbleached sulphate, $3.

The action followed a recommendation by the Civilian Production Administration that the price agency "take whatever action was found necessary to assure availability of essential wood pulp supplies." Price increases were described by the OPA as "discretionary" and not mandatory under the Price Control Act.

The committee, which had asked that controls be removed, was told that the recommendation would be taken under consideration and that an answer would be given as promptly as possible following a study to determine whether suspension of newsprint price ceilings at this time would be consistent with the stabilization program. OPA officials present at the meeting offered to consider any alternative proposals the committee might make simultaneously with consideration of the suspension recommendation. However, no requests were made for a price ceiling increase, the committee confining its recommendations solely to suspension from price controls. The recommendation was presented orally, and the committee said it would follow it up with a written recommendation and supporting data to justify the proposed action.

OPA officials pointed out that their study would, among other things, have to take into consideration the extent to which foreign producers might possibly inflate the market, as 80 per cent of newsprint used in the United States is at present being imported.

John L. Hobson, vice-president, St. Croix Paper Company, Boston, Mass., chairman of the industry advisory committee, presided at the meeting. Other committee members present were John R. Cowles, Maine Seaboard Paper Company, Bucksport, Me.; Harold Nichols, Crown Zellerbach Corporation, San Francisco; and C. B. Stanwood, Great Northern Paper Company, Boston.

RALPH G. LUFF
President of the D. L. Ward Company, Philadelphia, and former president of the Philadelphia Paper Trade Association, who was named vice-president of the National Paper Trade Association for the Wrapping Paper Division at its annual convention.—*Bachrach Photo.*

Southland Mill Will Double Its Output

LUFKIN, Texas—Plans for a $5,000,000 expansion program have just been completed by the Southland Paper Mills here. The program will double the newsprint capacity of the plant. According to Ernest L. Kurth, president of the corporation, construction of a building to house the second newsprint machine is well under way. Mr. Kurth said the machinery and buildings attendant on the expansion will be ready for production by September, 1947.

"Present chemical pulp equipment is sufficient to meet the needs of the existing and new unit," he added.

The Southland Paper Mills plant here, which began operations in January, 1940, has a rated capacity of 50,000 tons of newsprint annually. When the capacity is doubled through the current program, total investment in the plant will be $15,000,000, it was stated.

Mr. Kurth said the mill uses pine from lower East Texas. It owns 100,000 acres of timberland which is not being used. Present needs are met through timber brought to the mill by farmers living in the area.

The mill management is cooperating with federal and state forestry services in urging reforestation practices in the lower East Texas area, he added.

McGill Receives First Grant for Research

The Governors of McGill University have acknowledged receipt from the Canadian Pulp and Paper Association of the first quarterly payment by the Association on a grant of $3,750 for 1946 to the University's Department of Industrial and Cellulose Chemistry.

Wholesale Volume Rises

WASHINGTON, D. C.—Wholesalers' sales of paper and paper products totaled $12,087,000 for January and February, 1946, a gain of 13 percent over the same period of 1945, according to the Bureau of Census, based on figures from a group of reporting firms.

February, 1946, sales of this group totaled $5,150,000, a decline of 10 percent from January, but 12 percent higher than for February last year.

Inventories by a reporting group showed a gain of 14 percent compared with February last year, but no change from January this year.

Midwest Would Eliminate All Controls on Paper

CHICAGO—Trade circles in this area are watching with interest the effect of the almost simultaneous proposal to suspend ceilings on newsprint and the word from the Office of Price Administration that producers' price ceilings for wood pulp would shortly be increased about ten per cent to encourage production. Thus, while the agency was giving its version of stimulation to production the chairman of the industry's newsprint committee was making its request for complete suspension of price controls and virtually for the same reason, according to local reports.

The wood pulp increase, it is reported here, will range from $3 to $9 a ton on standard grades and from $4 to $12.50 a ton on special grades representing perhaps three per cent of the market woodpulp. It is said that such an increase would mean about $20,000,000 annually in increased return to pulp producers with the ceilings applying to both domestic and imported woodpulp to help maintain shipments of domestic woodpulp and encourage greater imports of foreign woodpulp, the latter source reportedly having about dried up because of current ceilings in this country.

Specifically, local reports state, the increases on a ton basis for standard grades covering bleached and unbleached sulphite and soda pulp, northern bleached sulphate and groundwood, southern bleached sulphate, southern unbleached sulphate and northern unbleached sulphate should have some stimulating effect.

However, there is a growing conviction here that the newsprint advisory committee is more nearly on the right track by taking the view that it would be better to suspend all controls than to leave controls which, as one local representative put it "beget more controls." Perhaps the strongest comment came from a man who prefers to remain unidentified who said that "the American people had better ascertain soon whether they want controls forever or no controls right now. A control here and no control there means artificiality right along the line. When you try to check inflation by price control—during peace time—you plug the gap in one place and the outburst comes along somewhere else. Our industry would be far better off to emphasize a checking of the factors which really make for inflation — monetary policies, wages, inflated payrolls, Government spending, etc. — than to kid ourselves into thinking that by maintenance of price controls we are going to curtail high prices."

Marinette Operations Expand

FORT EDWARD, N. Y.—Manufacturing operations at the Marinette Paper Company located in Fort Edward are continuing to expand, the local plant at the present time having one machine for making paper towels and one for waxed paper operating, while the reconstruction and assembling of machinery for further operations is being carried on. Wax machines in the Cut-Rite finishing department are now in operation.

Stockholders Approve Morris-Lindley Merger

MARION, Ind. — Stockholders of the Morris Paper Mills, Morris, Ill., and the Lindley Box and Paper Co. have approved a merger of the two firms which have been affiliated for the last several years. The consolidation does not affect the operations of the Marion plant which will continue under the same name as a separate division of the Morris Paper Mills.

There will be no change in management of the Marion plant, the announcement stated and it will continue to have a separate sales organization.

The Marion plant is erecting two large additions and as soon as these are completed there will be substantial increases in production which are anticipated when adequate paper board supplies are available.

Marathon Markets Papers For Frozen Food Trade

MENASHA, Wis.—New and improved products for packaging and wrapping frozen foods have recently been placed on the market by Marathon Corporation. The products include Tite and Freeztex locker wrappers, for meats, poultry, etc., and Freeztex locker packages for frozen fresh fruits and vegetables.

In order to provide all the requirements of a successful locker wrap — protection against dehydration, oxidation, cracking and scuffing, while retaining the important qualities of flexibility and moldability — Marathon laminates glassine to kraft to make Tite, and cellophane to kraft to make Freeztex. A single sheet thus takes on the protective properties of several sheets. Careful laboratory and field tests have demonstrated the superiority of laminated papers over either single or double wrappers for protecting meats, poultry, game and fish through the quick-freezing and storage stages of their locker life.

Tite is supplied in four size rolls, 15", 18", 20" and 24" — each containing 750 square feet of wrapping surface. Freeztex comes in two "locker size" rolls, 18" by 500' and 24" by 375', and is also available in "home size" rolls, 18" by 100' and 24" by 75'.

Paper Board Industry Is Asked to Aid Gypsum

WASHINGTON, D. C.—A special four-man task committee from the paper board industry which will confer with Government officials concerning the channeling of approximately five per cent of the paper board production into paper liners for gypsum board, has been named by the Civilian Production Administration. Those named were Charles E. Carey, Central Fiber Products Company, Chicago; A. L. Crowell, Ohio Boxboard Company, Rittman, Ohio; W. Osborne, Jr., Hummel and Downing Company, Milwaukee, Wisconsin; and Marvin W. Swain, Alton Boxboard Company, Alton, Illinois. The first session was tentatively set for April 19.

Oppose Penalizing Industry

The committee was appointed following an all-day session last week during which the industry leaders expressed dissatisfaction with the plan that they provide a portion of their production so that the gypsum board industry could operate at capacity. The production of paper liners for gypsum board, which is on the critical materials list, is regarded as one of the worst bottlenecks in the program to speed materials into the veterans housing program. After John Houston, CPA program chairman, asked the committee to recommend methods to equally spread the production of paper liners among themselves, industry spokesmen voiced their opposition to the plan on the ground that it would unjustly penalize their industry for the benefit of another.

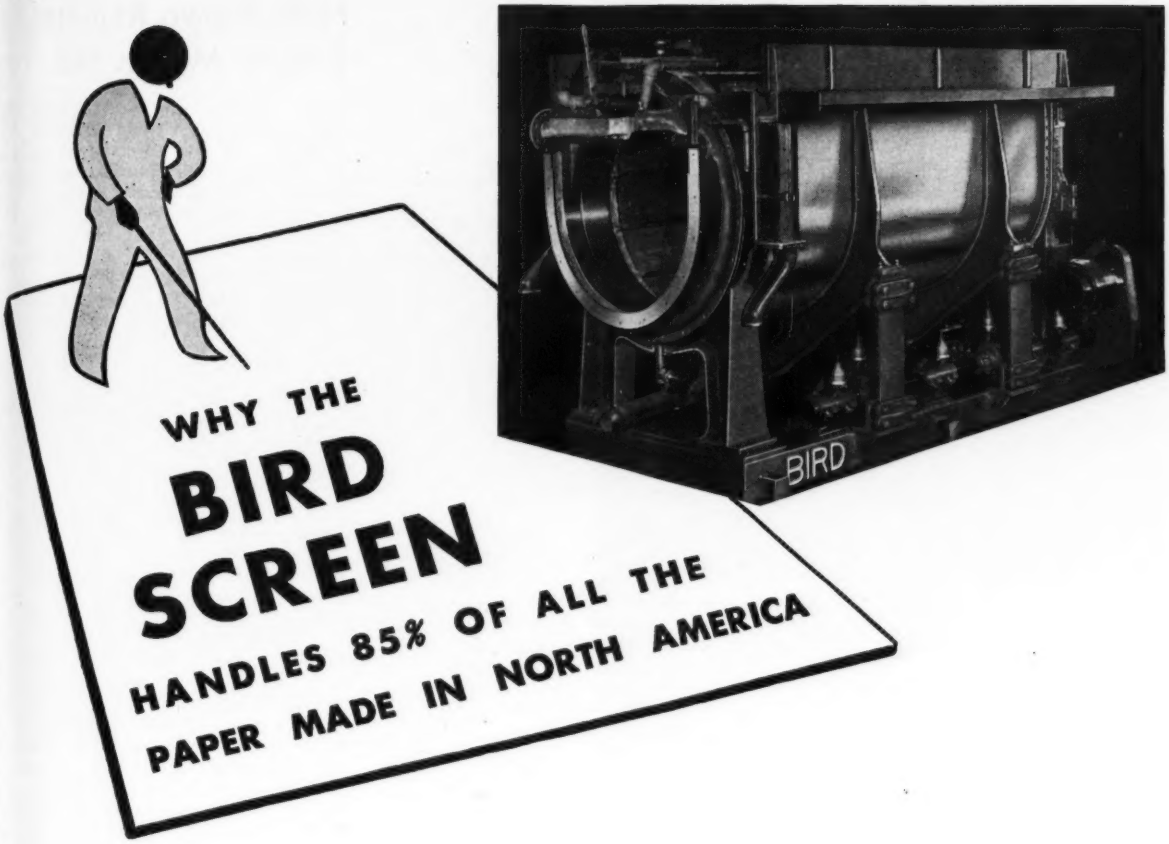
The committee members also opposed the provision in the present construction limitation order which allows construction and repairs up to $400 as being a loophole through which vast quantities of gypsum board would pour for non-essential uses.

It was the consensus of opinion of the committee members that the Government was asking them to furnish raw materials for an industry which, in some instances, would be a competitor once the emergency is over.

The committee agreed that the paperboard industry should go along with the veterans housing program, but contended that if materials are to be provided for repair and maintenance work, such activity should be brought under a rating system.

Admit Control Impossible

Both Mr. Houston and John H. Patterson, Government presiding officer, said that the proposal to allocate materials for minor repair jobs costing less than $400 ceiling would be an impossible administrative and enforcement task and asked the committee to accept their assurance that "everything possible would be done" to see that none of the gypsum board ends up in non-essential construction.



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Canada's Paper Industry Urges Tree Cropping

MONTREAL — In connection with the proposal put forward by Paul Kellogg, general manager of the Newsprint Association of Canada, calling for overall measures of forest conservation throughout the Dominion to be undertaken by the Federal Government, instead of being dealt with in piecemeal fashion by the respective provinces, it is pointed out that for some years past the various units of the pulp and paper industry have planned their cut in the manner which encourages the maximum re-growth and spend, too, large sums yearly on forest protection. They are convinced that re-growth is not only the most economic method of growing trees, but also the most effective method—much more effective than planting them, because, in Mr. Kellogg's words, "nature is thus encouraged to pursue her own very successful methods." This theory has the wholehearted backing of the Dominion Forestry Association, which holds that tree planting is a palliative on which too much importance can be placed.

Supporting the idea, Mr. Kellogg says that the industry is well aware that its mills cannot operate without accessible and adequate pulpwood supplies, and that mills cannot be moved to tap new sources of supply. But pursuance of its "annual crop" policy is not enough, he urges. In fact, it is impossible for any industry to assume responsibility for the management of all the forests of Canada. That is clearly the responsibility of the Federal Government, as the representative of the owners of the forests, namely, the Canadian people, if the forests are to be preserved as a continuing and perpetual national asset.

Asks Integrated Policy

R. L. Weldon, speaking on behalf of the Canadian Pulp and Paper Association, of the Executive Board of which he was chairman last year, says that the science of the growth and development of trees is relatively new, and to take full advantage of its possibilities and of the knowledge now available, an integrated national policy is advisable. As far as members of the Association are concerned, they have for many years carefully estimated the amount which can be cut over each year without affecting the normal recovery of the forest. As time progresses and areas now under observation reach maturity, it will be possible for them to more closely determine the point at which it is most economical to cut the re-growth of the forest, and "it seems certain that application of this science, if coupled with adequate protection, will insure the continuation of our forests in perpetuity."

Outlining provincial plans for forest conservation, J. H. McQuarrie, Minister of Lands and Forests for Nova Scotia, says that the Government plans to train a squad of flying fire-fighters to combat forest fires. He has also announced that, after a lapse of several years as a conservation measure, the Government this year will resume the sale of Crown lands for timber cutting.

Emphasizing the importance of forest wealth in the economy of the province of New Brunswick, Premier J. B. McNair reports that the approximate value of production from the forests of the province in 1945 was $74,000,000, which was $2,000,000 more than in 1944. A by-product of the forests was a revenue of $2,000,000 in addition, from angling, hunting and trapping. Of the figure of $74,000,000, the output of pulp and paper mills was valued at $41,000,000 in 1945, and the production of sawmills and woodworking plants at $16,000,000. Firewood accounted for $7,000,000 and pulpwood, pit props, ties, logs, poles, etc., $10,000,000. These figures showed an increase in the value of pulp and paper products and a decrease in the value of products from sawmills and woodworking. Total sawn lumber in 1945 was estimated at 285,000,000 feet.

The six pulp, or pulp and paper, mills which operate in the province worked at around 95 per cent of capacity during the year, he said, and used up some 867,000 cords of pulpwood.

Quebec Stumpage Tax Increased By 15 Cents

MONTREAL—The Quebec Legislature has passed a bill under the provisions of which an additional stumpage tax of 15 cents will be payable by all holders of timber limits in the province from which wood is destined for the manufacture of pulp and paper or the accessory products of pulp. This new tax, earmarked for the Education Fund, is expected to yield $750,000 annually.

Up to the present the greater part of the revenues of the School Commissions has come from taxes on real estate, which have proved so inadequate in meeting the expenses occasioned by the rising standard of education that School Commissions throughout the province are heavily in debt. Under the new law existing property taxes will be supplemented by some $12,000,000 of new revenue, of which, besides the new stumpage tax, $2,800,000 will come in an annual contribution from the Quebec Hydro Commission, which two years ago expropriated Montreal Light, Heat and Power Consolidated, and in addition about $6,500,000 from the provincial sales tax.

Hear Brown Rejects Twenty Million Bid

MONTREAL — Financial circles here report that the Brown Company, of Berlin, N. H., has rejected an offer of $20,000,000 for its Canadian subsidiary, Brown Corporation, of La Tuque, Que. F. G. Coburn, president of the company, is locally quoted as saying that a somewhat similar offer, with qualifications, had been received and rejected by the directors, "as being far short of the value thereof to Brown's Company's business and stockholders."

Brown Corporation is one of the pioneers in the pulp industry in the St. Maurice Valley region of the province, where major pulp and paper industries are now situated. The sales of the Corporation's products from the La Tuque mills in 1945 amounted to $11,243,000, an increase of over half a million dollars as compared with the previous year's output.

An extensive program of improvement has been under way at the plant for some time past. A major project in this program is the construction and installation of a new dryer, which is expected to be in operation by the middle of this year. Other features are the equipment of a new central repair shop, installation of improved conveyors, barking drums, and lime handling equipment, etc., all being aimed to reduce manufacturing costs, give higher quality products and enhance earning power.

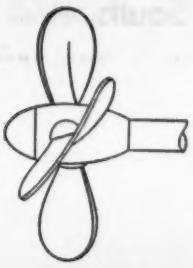
Newsprint Output Sets New Record for March

Production of newsprint in Canada during March 1946 amounted to 334,127 tons and shipments to 320,351 tons. Production in the United States was 65,304 tons and shipments were 67,658 tons. The output in Newfoundland was 31,177 tons and shipments were 23,717 tons making a total North American production of 430,608 tons and shipments of 411,726 tons. Total production in March 1945 was 355,621 tons and shipments were 354,731 tons. North American production in March 1946 exceeded that of any March on record.

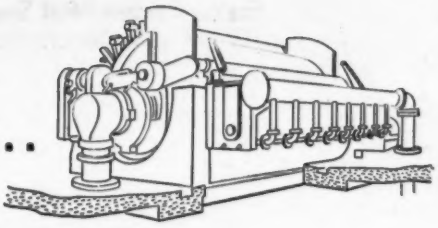
The Canadian mills produced 202,720 tons more in the first three months of 1946 than in the first three months of 1945, which was an increase of 26.4 percent. The output in the United States was 10,345 tons or 5.6 percent more than in the first three months of 1945; in Newfoundland production was 9,732 tons or 12.2 percent more, making a total increase of 222,797 tons, or 21.6 percent more than in the first three months of 1945.

Stocks of newsprint paper at the end of March were 129,308 tons at Canadian mills, 7,252 tons at United States mills, and 72,216 tons at Newfoundland mills, making a combined total of 208,776 tons compared with 189,894 tons on February 28, 1946, and 168,990 tons at the end of March 1945.

An Agitator?...



A Washer?...



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Brown Outlines Improvement Plans

BERLIN, N. H.—Modernization and expansion of its production facilities is outlined in the annual report of the Brown Company, made public this week.

The report outlines a program for the improvement and modernization of the Company's mills in Berlin and Gorham, New Hampshire, including a new sulphate pulp mill with an initial capacity of 60,000 tons per year, modernization of the part of the present Burgess sulphite pulp mill devoted to the production of specialty pulps, installation of a new 196-inch towel paper machine in the Cascade paper mill at Gorham, and modernization and expansion of paper towel converting equipment in the latter mill. Plans for the new pulp mill provide for future expansion of capacity and evolution in design.

Upon completion of the sulphate pulp mill, the Burgess sulphite mill will continue to produce sulphite and Alpha specification pulps for the market. The total planned production of pulps is well within the limits of pulpwood available to the Company on a sustained yield basis as estimated by a comprehensive aerial and ground survey completed in 1944. R.F.C. is providing the funds for this program.

Will OK Newsprint From Scandinavia

WASHINGTON — The Civilian Production Administration this week disclosed that it would grant immediately favorable consideration to applications for permission to make contracts for the shipment of newsprint from Scandinavia to the United States after June 30. Applications filed in advance for shipments after that date would be viewed favorably now, to afford to importers the opportunity to make arrangements with Scandinavaian producers, the OPA added.

Newsprint produced in Canada and shipped overland, by rail or inland by waterway, has not required import authorization; and ocean-borne imports from Canada and Newfoundland have been authorized freely.

Importers now seeking to bring newsprint from Scandinavia should make application in duplicate on Form CPA-1041, reference M-63, and addressed to the agency in Washington.

Swanson Visits Canadian Mills

O. F. Swanson, General Manager of J. Andersen & Company, importers of wood pulp, flew to Montreal Tuesday to look over Canadian mills. Mr. Swanson, who only recently returned from a tour of inspection of Scandinavian mills, will spend a week visiting various mills in the Province of Quebec.

Eagle Lodge Will Seek 12½ Cent Hourly Raise

HOLYOKE, Mass., April 14 — The Eagle Lodge of Papermakers has voted to seek a 12½-cents-an-hour increase. The local papermakers received a six-cent increase last fall, and will begin negotiations for the additional raise at once. President Andrew Beaton of the union will meet sometime this week with Harold T. Matin, labor adviser to the local paper manufacturers, to arrange for the meeting between labor and management to discuss the pay raise.

The union has also decided to request the manufacturers for three more holidays with pay. Last year the papermakers received three days, Christmas, Fourth of July, and Labor Day, in their agreement, and they will seek to have Thanksgiving, Memorial day and New Years' day added.

Acceptance of the "wire clause" was also voted by the local group and notification will be sent to the manufacturers of this vote. This calls for the exclusive use of union-made wires on papermaking machines.

Ohman Takes Over Engineer Post

APPLETON, Wis.—U. G. Ohman took over his duties last week as area engineer in charge of improvments on the Fox and Wolf rivers. He succeeds James E. Bambery, who has resigned from government service to replace Ben Prugh as manager of the Fox River Navigation Company.

Mr. Ohman has worked in the office and done field work form the district office of the United States Engineers in Milwaukee since 1926. He was the government inspector and engineer on the construction of the first reinforced concrete locks on the Fox river at Portage, Wis., in 1927 and 1928. He will move his family to Appleton next fall.

Catlin Is Awarded Citation of Merit

NEENAH, Wis.—T. C. Catlin, technical director at Gilbert Paper Company, Menasha, has been awarded the civilian citation of merit, which corresponds to the Army's Legion of Merit and is one of the highest civilian awards conferred by the War Department, for his work as operating engineer at Pine Bluffs, Ark., for three years during the war. He returned to Wisconsin in September and has been employed at Gilbert Paper since then. Before the war he was associated with Marathon Corporation at Menasha. In Pine Bluffs he supervised manufacture of incendiary bombs and poison gas in a chemical warfare military reservation.

Says South Will Finance New Mill

SAVANNAH — Donald Comer, prominent Birmingham manufacturer and leader of the movement for the new newsprint mills being planned at Childersburg, Ala., in Savannah last week, spoke enthusiastically about the progress of the work on these mills.

"We are going to use local managers and local capital," Mr. Comer said. "The late Mills B. Lane said southern bankers could finance any undertakings of this kind and we are going to depend on that statement and use local capital," he continued. "However, nobody appreciates more than I do the aid that has come from other sections and full credit should be given these sources."

Mr. Comer said that the plans were proceeding according to schedule and that he hoped there "would be enough good pulp for both of us," referring to the newly organized pulp mill which will open at Savannah soon. The only other paper print mill of this kind is in Texas, he pointed out.

Mr. Comer attended the board meeting of the Citizens & Southern National Bank here as a visitor.

Barclay Tissue Buys Interest in Victoria

FULTON, N. Y.—Purchase of a major interest in the Victoria Mills Company, one of this city's oldest paper manufacturing industries, by the Barclay Tissue Corporation of New York City, was announced today by an official of the latter company. There will be no change in the name or policy, it was said.

Norwegian Pulp Prospects Are Held Brighter

WASHINGTON, D. C. — Norway reports noteworthy improvement in wood cutting operations for the pulp mills, and a better outlook for the industry next season, according to a report to the Department of Commerce. At the beginning of 1946 pulp production was far below normal and no unallocated exportable surpluses will be available until at least July. Paper mills are operating at about 86 percent of prewar production, but find it necessary to import pulp from Sweden.

Expect Consolidated Paper Boom

TORONTO — Following publication of the report of Consolidated Paper Corporation financial circles are looking for a further rise in the common shares. Arguments include the likelihood of a refunding of the 5½ per cent bonds this year, with a reduction both in the amount of debt and of interest charges, and the possibility of another boost in newsprint prices. The stock is currently selling at about $20.50 a share.

THAT'S the linter cotton situation today. Many unavoidable difficulties have contributed to the present shortage. The Government's requisition of large quantities of linters for war use left no normal carryover from last year. The Texas hurricane some months ago and late and light crop conditions throughout the cotton belt greatly reduced this season's yield.

This has resulted in a sharp decrease in the supply of top grades of Rayco Linter Cotton with which we had been supplying the manufacturers of fine papers. Anticipating this shortage, our laboratories conducted extensive tests with linter cotton of *available* grades. These tests proved conclusively that some of these fibers were satisfactory for the successful production of cotton content papers.

We are making every effort to meet the needs of our regular customers with fibers we are able to obtain through our broad market contacts. What Rayco Linter Cotton we *are* able to ship, will not deviate from Railway's high standard of careful grading and inspection and uniform cleanliness. When the new cotton crop begins to come in, we hope to once more be able to accommodate new customers.

THE RAILWAY SUPPLY & MFG. CO., and Affiliates

Specialists in Grading, Marketing and Processing Cotton Fibers

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Plants and Sales Offices: Cincinnati, Ohio; Franklin, Ohio; Atlanta, Ga.; Charlotte, N. C.; Covington, Tenn.; Greensboro, N. C.; New York, N. Y.; Chicago, Ill.; Detroit, Mich.

RAYCO LINTER COTTON

Australian Market Continues Growth

PERTH, West Australia—Figures just released by the Commonwealth Statistician show that the value of imports of paper for the year 1944-45 was 3,763,000 pounds (approx. $18,062,400 at par), compared with $13,814,000 for the previous year. Imports of stationery, etc., were $9,398,000 against $7,833,600.

Detailed imports were: Millboards and other boards, $840,000 against $676,800; parchment, $825,600 ($1,003,200); printing papers, $8,995,200 ($4,262,400); wrapping papers $1,483,200; writing and typewriting papers, $3,052,800; and general stationery, $1,656,000.

Of the $46,944 worth of paper patterns which came through the Customs, $45,388 worth came from the United States.

Latest relaxation of the rationing of newsprint gives a 60 per cent restoration of the maximum cut. All restrictions on the use of paper, except in the production of daily, Sunday and weekly newspapers and periodicals have now been removed.

November importation of newsprint in rolls was an Australian record — 17,193 tons valued at $1,491,840. During the earlier months of the year deliveries were generally bad: January, 9,208 tons; February, 1,891 tons; March, 1,733 tons; April, 9,690 tons; May, 12,749 tons; June, 5,988 tons; July, 3,852 tons; August, 1,864 tons; September, 1,604 tons; and October, 6,293 tons.

Tasmanian Mills Expand

Development plans for the Tasmanian Newsprint Mills aim at an annual production of 90,000 tons, and timber concessions have been obtained to guarantee a yearly supply of raw material for the production of up to 100,000 tons. Expansion of this industry will cost between $20,000,000 and $25,000,000. Current production is 27,000 tons annually, the full requirements of the Australian market being 160,000 tons.

Associated Pulp & Paper Mills, Burnie, Tasmania, has initiated a long-term expansion program. This company produces fine printing and writing papers, and has two paper-making machines working. A third machine has been ordered, and buildings are now being erected for the installation of this and the necessary auxiliaries. It is anticipated that this additional plant will increase the company's output by some 40 per cent. However, it is doubtful if the new plant will be running to capacity until early in 1947.

When this company was formed in 1936 an output of 15,000 tons a year was expected, but actually the production has reached nearly 20,000 tons. Company has, to date, spent more than $6,500,000 on land, buildings and plant, and intends to install a fourth machine if market conditions so warrant. Management is now busy exploring new avenues of development with an eye to making additions to its present range of products.

Plan New Mill in Queensland

Plans are being considered for the establishment in Queensland of a modern paper and board mill, involving expenditure up to $2,500,000. This will be run by the Australian Paper Manufacturing Co., Ltd., who are already operating in Sydney, Melbourne, and Maryvale (Victoria).

Whakatane Paper Mills, Ltd., New Zealand, earned a net profit of $54,135 for the year 1945, against $12,441 for the previous year. Firm had a record production year of 12,284 tons gross.

Plans are in hand for the formation of a company in Western Australia for the manufacture of transparent paper from local timber. Factory would be on the small side for a commencement, with a proposed output of 500 tons per year.

Australasian Paper & Pulp Co., Ltd., reports a net profit of $612,134, a drop of $2,860 against the previous year's figures. A dividend of 6 per cent has been paid.

New Zealand Forest Products, Ltd., contemplates spending some $7,500,000 on development of the pulp and paper industry, and will shortly invite the public to subscribe funds for the necessary expansion. Company is only three years old as manufacturers, yet the past year's profit was $510,028, just double that of the previous year. Production has been maintained at a record level. Sir Charles Moore (Sydney) and Mr. I. H. Boas (Melbourne) have been reelected to the board of directors.

The seventh annual Pulp and Paper Co-operative Research Conference is at present being held at the works of the Australian Newsprint Mills, Boyer, Tasmania. Conference is being attended by representatives of Australian Paper Manufacturers, Ltd., Associated Pulp & Paper Mills, Ltd., Australian Newsprint Mills, Pty., Ltd., and the Division of Forest Products of the Council for Scientific & Industrial Research. One of the main objects of the conference will be the discussion of research projects carried out by the Division of Forest Products which are of direct interest to the paper industry. New Zealand Forest Products, Ltd., intends to send a representative to the next conference.

Mexico Will Continue To Import Greaseproof

WASHINGTON, D. C.—Market prospects for American greaseproof paper in Mexico are excellent, according to a report by Henry E. Allen, of the United States Embassy in Mexico City, published by the Department of Commerce. Although Mexico is expanding certain paper manufacturing facilities the country will depend on imports for the more specialized papers for many years to come. Production of greaseproof papers amounted to 703 short tons in 1942, while imports for the same year were estimated at 1,381 short tons. No exports have been reported.

Greaseproof paper is used almost exclusively by meat packers and delicatessen stores. Over 90 percent of vegetable parchment—a related product also covered by the report — is sold to dairies.

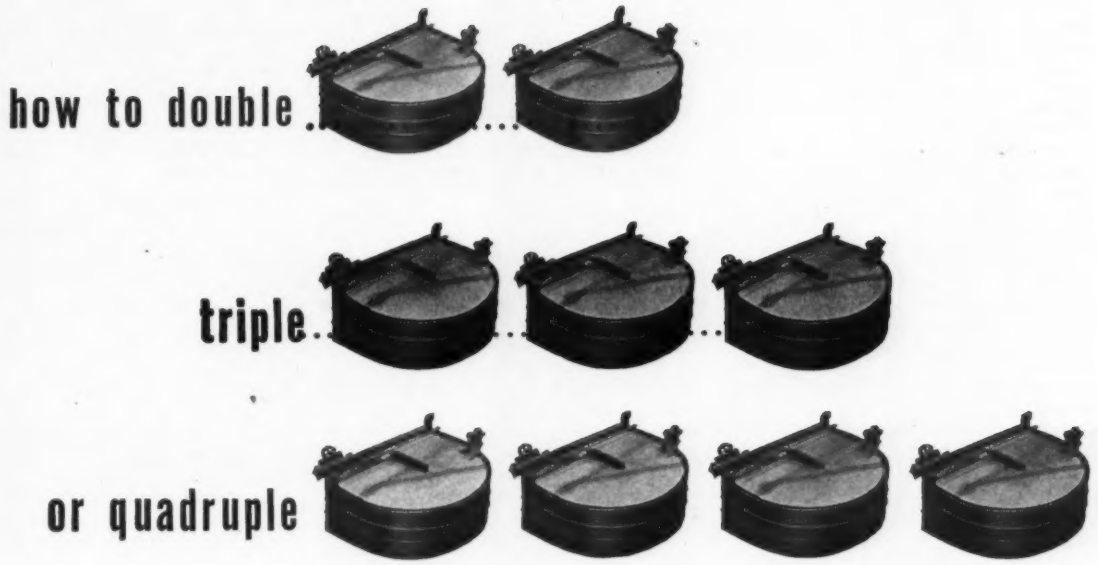
Improved standard of living resulting from Mexico's expanding industrial program is expected to open up new markets for improved packaging and handling of merchandise which should offer opportunities for increased use of greaseproof papers, the report states.

American producers should make every effort to take advantage of the expanding market, it was said. Several distributors of paper and paper products in Mexico are already receiving offers of immediate delivery on certain types of specialized papers from various European manufacturers.

Graham Doubles Space To Increase Output

HOLYOKE, Mass.—Graham Manufacturing Company, makers of paper napkins and papeterie items, has leased 18,000 square feet of floor space in the Municipal Gas and Electric company buildings to accommodate its expansion programs. The space adjoins its present plant of 20,400 square feet of floor space. Repair work is being done by the Bathelt Construction Co. and in another two weeks the plant will be ready for occupancy. The Graham firm is paying a rental of 40 cents a square foot a year for the main part of the space and 30 cents a square foot for the enclosed platform section. The more than 100 percent raise in rental fees from that formerly charged is a result of the Gas Department's program to make its rented spaces pay dividends.

The Graham Manufacturing company was established here 12 years ago by Floyd Graham of South Hadley, who was formerly connected with the American Tissue Mills. Additional machinery has already arrived and will be installed in the new space. The Graham firm now employs 40 and will add another 25 hands when the plant addition is in operation.



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Bathurst Sales at High Peak

BATHURST, N. B. — The annual report of Bathurst Power and Paper Company shows that new high sales records were established in the year, while net profit equalled 94 cents a share of "A" stock as compared with 95 cents in 1944.

Acquisition was reported of Shipping Containers Limited of Montreal and Kraft Containers Limited of Hamilton, Ont., through purchase of all the stock of the two companies.

Tonnage of sales increased from 107,852 in 1944 to 115,181 in 1945, and dollar volume from $7,542,835 to $7,986,326. Operating revenues amounted to $1,092,451 against $1,316,024, total revenues to $1,238,309 against $1,459,983, and net operating revenue to $1,104,283 against $1,331,071. Depletion and depreciation amounted to $505,539 against $480,094, and income and excess profits taxes to $285,000 against $353,106. After addition of $55,000 from pulpwood inventory reserve no longer required, net available for dividends was $377,778 against $380,450.

The report notes an important improvement in the pulpwood situation: with more manpower available for woods operations during the 1944-45 season, pulpwood inventory at the mill at the end of 1945 "had been restored almost to normal." The situation also notes that "the situation for the current season is also somewhat better insofar as volume of pulpwood operations is concerned."

In a special note to shareholders, the President states:

"The Wartime Prices and Trade Board has authorized, effective April 1, 1946, moderately higher prices for the majority of the company's products sold in Canada, including shipping containers manufactured by the two subsidiary companies recently acquired.

"The increases amount to approximately 7½% on boxboards, 10% on kraft liner and corrugating boards, and $10 per ton on sulphite pulp. These price advances, with the exception of sulphite pulp—the major part of which is sold in the export market—are applicable to practically the entire output of the company."

Brown Company Reports Net Of $1,219,808 for 1945

BERLIN, N. H. — Brown Company, producer of pulp, paper and allied products, shows consolidated net profit, after taxes, of $1,219,808 for the year ended November 30, 1945 comparable with $1,298,244 for 1944 and $1,126,415 for 1943, in its annual report.

The working capital of Brown Company increased $650,289 to $8,129,999 after expending $452,216 for improvements in its plants and timberland properties, and adding $597,448 to the special deposit under the outstanding R.F.C. loan. The working capital of Brown Corporation shows a decrease of $133,604 to $6,803,973, after expending $944,530 for improvements in its plants and timberland properties, adding $60,031 to special deposits under its bond indenture and writing down the pulpwood inventory as a result of a loss of wood left in the river.

Earnings in 1945 computed according to the indenture securing the General Mortgage 5% Bonds were approximately two and one-half times the annual interest charge; such interest will be paid when due on June 1 and December 1, 1946.

The improvement program undertaken in 1944 at Brown Corporation's pulp mill at La Tuque, financed from accumulated earnings, progressed substantially through 1945. The main feature of this program is a new dryer expected to be in operation by July.

Consolidated Paper Sales and Profit Up

MONTREAL — Increased earnings, a substantial gain in net working capital, reduction in funded debt, and gains in output and sales are shown in the annual report of Consolidated Paper Corporation Limited for the year ended December 31, 1945.

Net profit for 1945 transferred to earned surplus account was $1,788,752 as compared with $1,107,653 for 1944. The 1944 profit, however, was after deduction of a reserve of $500,000 for possible decline in inventory values.

The 1945 net profit of $1,788,752 is equivalent to nearly 70 cents per share on 2,563,073 shares of common stock outstanding at the end of the year. The 1944 net profit of $1,107,653 was equal to 43 cents a share on 2,562,703 shares outstanding at the end of that year.

L. J. Belnap, president, states that tonnage of pulp and paper products shipped was approximately 7% more than in 1944, while billings of all products, including lumber and miscellaneous, increased approximately 9%.

Pulpwood production was still affected by shortages of woods labor, the difficulty of obtaining mechanical equipment, and sharply rising costs.

The report reveals that average number of employes during 1945 was 4,788 against 4,548 in 1944. Total payments in wages and salaries were $8,398,832 against $7,989,755.

New Abitibi Stock Is Listed

TORONTO—The new Abitibi common stock traded at 16⅜ at last week-end compared with 8¼ for the old stock. The old stock was delisted at the close of the market and the transfer books for the common 6 per cent preferred shares and 7 per cent preferred closed on April 13.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending April 13, 1946

STOCKS

	High	Low	Last
A. P. W.	9	8¼	8¼
Armstrong Cork Co.	61⅝	60	60¼
Celotex Corp.	29⅞	28¾	29¼
Celotex Corp., pf.	21½	20¾	21
Certain-Teed Products Corp.	21⅜	19⅜	20¾
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	61	56	60
Champion Paper & Fibre Co., pf.	111½	111	111½
Congoleum Nairn Co.	38⅝	36½	37
Container Corp. of America	51⅜	50½	51
Continental-Diamond Fibre Co.	16¾	15⅞	16
Crown-Zellerbach Co.	40¼	38	39⅜
Crown-Zellerbach Co., pf.	108	107⅜	107⅜
Dixie Cup Co.	49	48	48¾
Dixie Cup Co.—A	57⅜	55¾	55¾
Flintkote Co.	43½	40⅞	43⅛
Flintkote Co., pf.	113½	113	113½
Robert Gair	10⅞	10¾	10¼
Robert Gair, pf.	21	20⅜	20⅞
International Paper Co.	49¾	48⅜	48⅜
International Paper Co., pf.	123	120¾	121½
Johns-Manville Corp.	167½	162	162
Johns-Manville Corp., pf.	153	148	152⅞
Kimberly-Clark Corp.	68¾	62	68¾
Mac Andrews & Forbes	38½	38	38
Mac Andrews & Forbes, pf.	....	....	....
Masonite Corp.	68	63	67¼
Mead Corp.	27⅞	26⅛	27¾
Mead Corp., pf. A—6%	107¾	107	107
Mead Corp. pf. B—5½%	108	107½	107½
National Container Corp.	34⅛	30⅛	33⅜
Paraffine Companies, Inc.	85	80	85
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	28½	26¾	27
Rayonier, Inc., pf.	39	38⅛	38½
Ruberoid Co.	53	50	52
Scott Paper Co.	57⅜	56⅜	56⅜
Scott Paper Co., pf.	....	....	....
Sutherland Paper Co.	49¾	46	49¾
Union Bag & Paper Corp.	32½	31¼	32⅛
United Paperboard Co.	11¾	11⅛	11⅜
U. S. Gypsum Co.	126	124	125
U. S. Gypsum Co., pf.	204	204	204
West Virginia Pulp & Paper Co.	51	46¾	48
West Virginia Pulp & Paper Co., pf.	116¼	116	116

BONDS

Abitibi Pulp & Paper Co. 5s '53	109¼	109	109¼
Celotex Corp. 3¾s '55	....	....	....
Certain-Teed Products Corp. 5½s '53	....	....	....
Champion Paper & Fibre Co. 3s '65	....	....	....
International Paper Co. 5s '47	102	102	102
Mead Corp. 3½s '53	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending April 13, 1946

STOCKS

	High	Low	Last
Great Northern Paper Co.	44½	43	43
Hummel-Ross Fibre Corp.	17⅜	14¼	17⅛
St. Regis Paper Co.	11¾	11	11
St. Regis Paper Co., pf.	....	....	....
Taggart Corp.	10	9¾	9¾

BONDS

American Writing Paper Co. 6s '61	....	....	....

"No sticking valves..."

...with Tycol diesel oils"

"Negligible cylinder liner wear . . .
Oil unchanged for eight years . . .
Maintenance costs cut 15% . . .
Engines give better service . . .
Costly overhauls eliminated . . ."

—these are statements made by a leading company's chief engineer. "In addition," he said, "one of our six cylinder Diesel engines operated with such low fuel consumption that we've questioned it several times. Of course, it was lubricated with Tycol Diesel Oils."

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True Economy in Handling...

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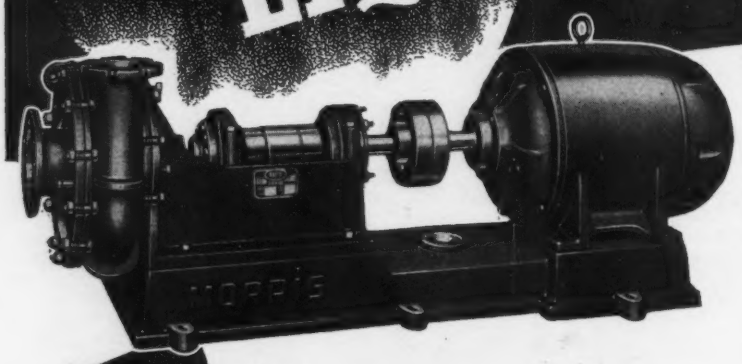

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Pumps based on ordinary clear-liquid design are entirely inadequate for handling black liquor containing solids. That's why MORRIS BLACK LIQUOR pumps are solids-handling pumps. They are based on Morris, long experience in building pumps to withstand the grinding action of all types of abrasive mixtures.

Three factors in Morris Black Liquor pump design contribute to the exceptional long pump life obtained by the country's leading paper mills.

1 — and most important:

The pumps are hydraulically and mechanically designed for the *express purpose* of handling solids, no matter what metal or alloy is used for the wearing parts.

2 The wearing parts are more than twice as thick as in conventional clear-liquid pumps.

3 The substitution of special corrosion and abrasion resisting alloys is not merely an expedient to lengthen the life of an otherwise unsuitable design, but a true means of augmenting the life of an inherently long lived unit.

Morris engineers have been building outstanding centrifugal pumps for 81 years. Let them consult with you on your pumping problems. No charge. No obligation.

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MORRIS CENTRIFUGAL PUMPS

Wichita Printers Visit Central Fiber Mill

WICHITA, Kansas — Forty representatives of Wichita printing firms visited the Hutchison, Kansas, paper mill of the Central Fiber Products Company on April 4, as guests of the mill management. The group was organized by Edward G. Virant, executive secretary of the Printing Industry of Wichita, Inc., and traveled by bus from Wichita to Hutchinson.

Upon their arrival in Hutchinson, the Wichita printers were the guests of the paper company at a luncheon served at the Bisonte Hotel. Following the luncheon the group toured the plant.

The Printing Industry of Wichita has announced that it is planning a graphic arts exhibition to be held during 1946. The show will be designed to educate residents of Wichita and Kansas as to the growing importance of printing in their state.

Fred Windsor, executive vice president of the St. Louis Printers and Lithographers, and Donald Pyke, sales promotion manager of the Graham Paper Company, St. Louis, spoke at a luncheon meeting of the Wichita association on March 29, at which plans were made for the exhibition.

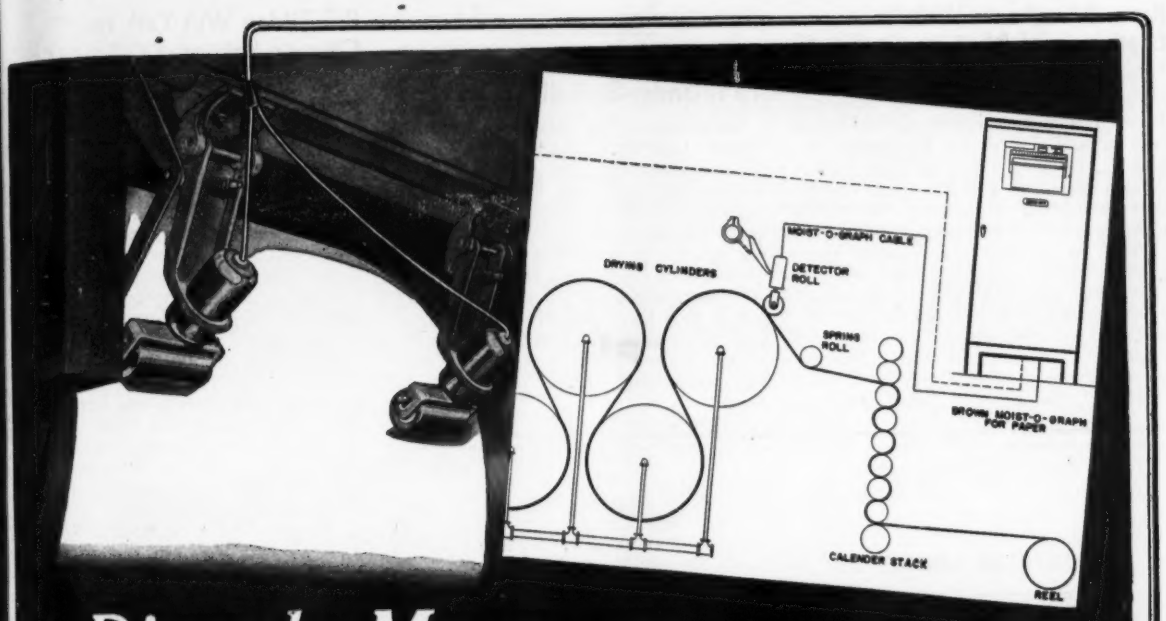
United Wallpaper Stages Contest for New Design

CHICAGO — An international wallpaper design competition, with $7,500 in prizes for the winners, open now and until August 31 has been sponsored by United Wallpaper, Incorporated. The grand prize winner in the contest will receive an award of $2,500, of which $1,500 is the prize for submitting the best wallpaper design in the entire competition, and $1,000 is the prize for the best design in one of the six classifications. These classifications are: living room, dining room, hall, bedroom, kitchen and bathroom wallpaper designs. Six prizes of $1,000 each are offered the entrants who submit the best designs in these classifications.

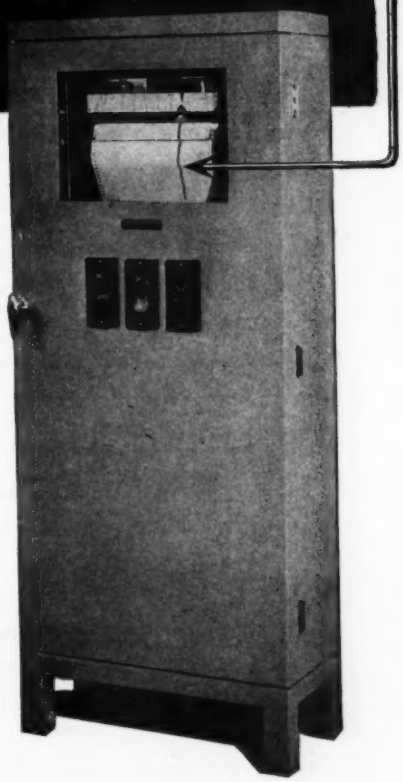
Open to everyone, amateur and professional alike, the contest is being publicized in the United States, Canada, Great Britain, France, Belgium, Holland, Russia, Sweden, Denmark, Norway, Germany, Italy, Australia, Mexico, South Africa, and all the Central and South American countries. Purpose of the international competition is to discover new wallpaper designers, to stimulate a new interest in wallpaper design, and to discover possible new color combinations and motifs.

Champion Orders Jordans

The Champion Paper & Fibre Co., Canton, N. C. has recently purchased eleven more Majestic Jordans from E. D. Jones & Sons Co., Pittsfield, Mass. These Jordans are to be used with Champion's new and existing paper machines.



Directly Measures MOISTURE CONTENT *of Moving Sheet*



HERE'S the instrument the paper industry has long awaited —it outmodes all other methods of checking *"moisture content"* for all grades and weights of paper.

The Brown *Moist-o-Graph* system operates on the principle that *"moisture content"* of paper has a corresponding electrical resistance. As the sheet passes over the drying cylinders —the *Moist-o-Graph* electronic detector roll is in DIRECT CONTACT with the moving sheet, continuously measuring moisture content.

This measurement is electronically transmitted to the *Moist-o-Graph* recorder, which provides operators with a visual and permanent record of *moisture content* of the paper as it comes off the machine.

The Brown *Moist-o-Graph* is an accurate guide for regulating heat supply to drying cylinders—permits maximum amount of water to be held without discoloring or spoilage. Eliminates overdrying—increases production—lowers steam costs. Insures uniform quality, weight and caliper of stock.

Years of research, design and tests have proven the Brown *Moist-o-Graph* the ideal instrument for determining and holding the correct moisture content of Book, Bond, Ledger, Coated, News, Cardboard, Box Board, Capacitor Tissue, and Kraft papers.

Learn more about the Brown *Moist-o-Graph system*. Write for Bulletin 28-8. THE BROWN INSTRUMENT COMPANY, *a division of Minneapolis-Honeywell Regulator Co.*, 4510 Wayne Avenue, Philadelphia 44, Pa. Offices in all principal cities. Toronto, Canada — London, England — Stockholm, Sweden — Amsterdam, Holland.

BROWN MOIST-O-GRAPH

Paper Merchants Will Hear Leathers and Blackman

BOSTON, Mass.—Willard G. Leathers, assistant secretary of the National Paper Trade Association of the United States, and Floyd H. Blackman, regional wrapping paper member of the NPTA board of directors and executive committee, will address a luncheon meeting of the Wrapping Paper Division of the New England Paper Merchants Association, scheduled for Tuesday, April 23, at the Parker House, at 12:30 o'clock. Their remarks will follow a round table discussion of several matters of current and mutual interest by members of this division. Walter G. Butler, Perkins & Butler, Worcester, Mass., new vice-president will preside.

Twelve Return from Service To Inlander-Steindler Staff

CHICAGO — The Inlander - Steindler Paper Company, well known local coarse paper firm, has announced that twelve of its former employees have returned to the services of the company after having served their country in various branches of the armed forces. Included in the list are Herbert Alholz, Edwing Goldberg, John Waller, Edward Ward, Oscar Makowsky, Carl Pokorny, Nathan Haber, Sidney Pokorny, John Griffith, Lawrence Knobloch, Howard Kenney and William Isaacs.

April 18, 1946

AN OPEN LETTER TO
PAPER MILL SUPERINTENDENTS

Gentlemen: Re: RAG COOKING

The scarcity of paper makers rags has forced paper mills to find ways of using any rags available.

Decolorizing and cooking of rags and cotton linters can best be accomplished by using a proper balance of alkalies with Kinsley's "K-121-B". This special alkaline chemical compound has wetting, flotation and reducing properties which prevent redepositing of the dyes and pigments removed from the fibers. This makes possible easier and faster washing and brighter stocks.

A letter to Kinsley's Technical Department or a rag sample will assist our laboratory in setting up a formula for your individual problem.

Yours truly,
THE KINSLEY CHEMICAL COMPANY
12500 Berea Road
Cleveland 11, Ohio

P.S. If you are de-inking, "K-140" used with the proper balance of alkalies will improve your results.

Bill Tilden Will Talk to Chicago Salesmen

CHICAGO — William "Bill" Tilden, popular member of the Salesmens Association of the Paper Industry and sales executive with the Mead Sales Company, is to usher in the new series of monthly "open houses" beginning on Monday noon, April 22. It is expected that an unusually large number of salesmen and guests will be at the Hotel Sherman on that date to hear Bill relate his experiences during the Navy's end of the great war in the Pacific. The Mead Sales representative was a Lieutenant in the Navy, serving with the late Admiral Theodore S. Wilkinson for twenty-one months. Admiral Wilkinson was Commander of the Third Amphibious Force of the United States Pacific Fleet and Bill, as his aide, had ample opportunity to get in on the thick of things.

His talk "Navy War in the Pacific" will cover this activity though Bill is a bit concerned that the SAPEYES may be expecting too much "inside information." He'll tell his brother members all he can, but, as he says, there are still many things which still must remain untold until official sources permit their release. The speaker was secured by J. T. Daly, Wrenn Paper Company, April program chairman.

Wilder Firm Incorporates Planning Expanded Trade

PHILADELPHIA — Wilder Brothers Company, members of the National Paper Trade Association and the Paper Trade Association of Philadelphia, has been incorporated. This company was established in 1914 by C. A. Wilder and his brother, I. J. Wilder, who died in 1929. The officers of the company are C. W. Wilder, president; Joseph Dubinsky, vice-president; Samuel Weiss, treasurer; A. J. Klein, secretary, and Morris E. Goldberg, assistant secretary. Mr. Dubinsky and Mr. Goldberg have been with the company since its establishment in 1914; Mr. Klein and Mr. Weiss since 1931. With the assistance of the new officers, plans are being made to expand the sales and converting departments. Orders have been placed for a 72-inch M & W sheeter, a 60-inch Cameron slitter and a 50-inch Seybold cutter. A. H. Reibstein has been appointed office manager and R. H. Lawrence purchasing agent.

Millar Men Celebrate 50 Years of Service

John J. Dillon, vice-president of George W. Millar and Company, Inc., New York paper merchant, and George Breeze of the sales department, celebrated this month their fiftieth anniversary of service with the company. Mr. Dillon entered the employ of the Millar company's predecessor on April 27, 1896; Mr. Breeze preceded him by one day, arriving April 26, 1896.

WHEREVER YOU WANT . . . Longer Life,

Freedom From Contamination,

Lower Maintenance Costs

-nothing equals Stainless Steel!

AUTHORITIES have called the application of Stainless Steel in the sulfite pulping process the most important development in the field of pulp and paper mill materials. Not only because of the greater durability that the use of Stainless Steel insures but because of its effect in safeguarding the quality of the finished product by protecting it from harmful contamination.

The ever-expanding use of Stainless Steel in sulfite digesting equipment, in vacuum stills, heat exchangers and in pipings and fittings handling hot sulfite liquors is due to the greater economy obtained. The right Stainless Steel properly applied has proved that it will far outlast the materials formerly used which required frequent and costly replacement.

In digester strainers for example, Stainless Steel after three years of service showed no signs of wear. The holes were no larger than when drilled. Pitting and plugging difficulties were non-existent. A tenfold increase in life was indicated.

Stainless Steel used for winding wire and wire cloths in cylinder moulds, washers and save-alls has extended life from a matter of weeks to years.

Corrosion and abrasion of beater bars and Jordan fillings have often been the source of undesirable contamination and discoloration. When ordinary steel was replaced by Stainless Steel, these troubles were ended.

In Fourdrinier save-all pans the high strength of Stainless Steel has reduced weight materially, made tray handling easier, decreased the hazard of damage. Its smooth, easily cleaned surface avoids the collection of stock, slime and filler.

Stainless Steel tubing for small diameter table rolls, because of its high modulus of elasticity, provides greater stiffness, insures freedom from excessive whipping and vibration. These are facts that no operating engineer can afford to overlook.

Before you specify Stainless Steel — *consult us.*

U·S·S Stainless Steel is available in a wide variety of analyses and in the most complete range of shapes, forms and surface finishes anywhere obtainable. But some grades are better suited than others for pulp and paper mill applications. For that reason we suggest you talk over your problems with our representatives. These men know what Stainless Steel can do. They will gladly advise you what analyses will give you the best results, how to use U·S·S Stainless most efficiently. They'll also tell you when not to use it if its use is not economically justified.

U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
NATIONAL TUBE COMPANY, *Pittsburgh*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
United States Steel Supply Company, Chicago, *Warehouse Distributors* · United States Steel Export Company, New York

USS STAINLESS STEEL — UNITED STATES STEEL

UNITED STATES STEEL

Bird Machine Elects Becker as President

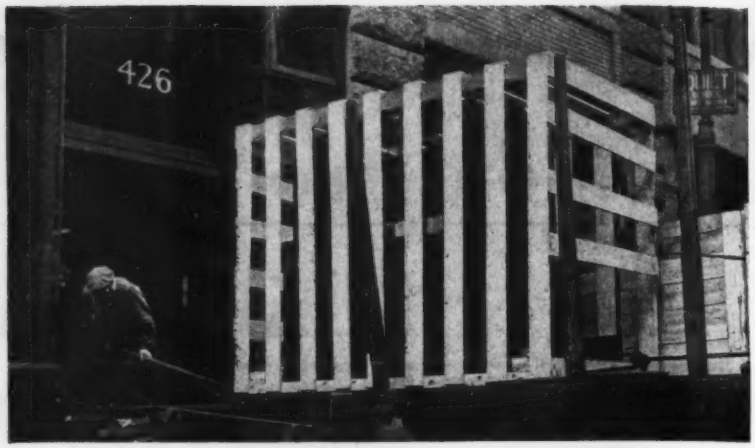
SOUTH WALPOLE, Mass. — F. K. Becker, for many years vice-president of the Bird Machine Company, has been elected president of the company, succeeding Phillips Dennett who retired April 1st after thirty-five years with the company, the past twenty years as its president.

Mr. Becker is widely known throughout the paper industry. He has been associated with Bird Machine Company since 1916 except for leave of absence during World War 1 in which he served as a flying officer with the Army Air Forces in France. He was made vice-president in charge of sales in the company at the time Mr. Dennett became president. During the war he was placed in charge of manufacturing in connection with the company's heavy war production program and has functioned in this capacity as well as in charge of customer relations for the entire war period and up to the present. He has presented many papers at meetings of TAPPI and the Superintendents Association and has been actively identified with the development and sale of such well known items of paper machinery as the Bird Screen, the Bird Save-All, Bird Centrifiners and Dirtecs, Vickery Felt Conditioners and Doctors, the Jonsson Screen for pulp and the Bird Consistency Regulator.

Yarway Digester Valves Play Profitable Roles at Mills

Notable for many years, the seatless sliding plunger principle in Yarway blow-off valves has a pertinent application in the pulp and paper industry. Giant seatless valves in the digesters are used to discharge the contents after cooking, through the blow line into the blow tank.

According to the Yarway News, publication of the Yarnell-Waring Company, Philadelphia, one large southern mill, after installing these valves, was able to reduce its operating force by one man per shift or three per day, using these men more profitably elsewhere. Not only were operations more economical, but production increased 15 to 20 tons per day.



DELIVER FIRST LAWSON CUTTER

Here is the new Lawson "38" paper cutter being delievered to the showrooms of the E. P. Lawson Company at 426 West 33rd Street, New York City, for display and demonstration purposes. Members of the trade and press representatives have been invited to witness the new cutter in action and to examine the many exclusive patented features introduced for the first time in the Lawson "38." Designed by Fred Seybold, Lawson's chief engineer, the new 38-inch cutter is now in quantity production with larger sizes of standard and automatic spacing models to follow.

Paper Chemicals Develops Grease Repellent Size

Paper Chemicals, Inc., 510 W. 27 Street, New York, has developed a new P. C. grease repellent size. This product, as well as P. C. water repellent size, can be used within the present conventional operational equipment of paper mills. It may be brushed or tub sized or introduced into the water box. Both are non-toxic and they are neither waxes, oils, fatty acids nor soap bases.

These two items are said to be different from wax repellents on the market. Both offer low cost of application.

Columbia Chemical Buys Natrium Soda Plant

PITTSBURGH, PA.—Purchase of the large chlorine and caustic soda producing plant at Natrium, W. Va., from the Reconstruction Finance Corporation has been completed by the Pittsburgh Plate Glass Company's Columbia Chemical Division. The plant was built and operated by the Columbia Chemical Division for the government's Defense Plant Corporation under a contract which included an option to purchase.

Cowles Line Now Includes New Felt Washing Detergent

CLEVELAND, Ohio—The Cowles Detergent Company has developed a new special paper mill felt washing detergent called "Nu-Nap." To meet the various operating conditions of the mill, the Cowles Laboratories have developed two grades—Nu Nap for washing on the paper machine and Nu Nap Special for use on or off the machine. It is a completely anhydrous product containing 100% active ingredients. Nu Nap is equally effective in either hard or soft water, washing clean, rinsing freely and leaving felt soft and absorbent. Furnished in 400 lbs. open head drums.

Additional information may be obtained by writing the Paper Chemical Division of The Cowles Detergent Company, 7016 Euclid Ave., Cleveland 3, Ohio.

E. de Vries Company

EDVECO

PAPER EXPORTERS

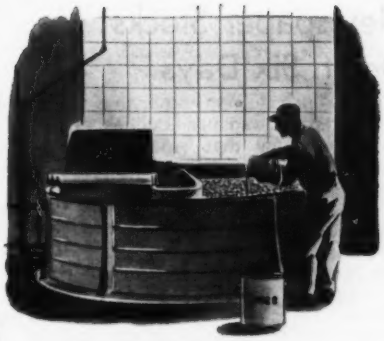
ALL OVER THE WORLD

EDVECO

220 E. 42nd Street

New York 17, N. Y.

NOW PAPER TOWELS CAN BE 26 TO 48% MORE ABSORBENT!



In Comparative Tests with Other Accepted Absorbency Materials, NOPCO 2272-R Gives Faster Absorbency and More Lasting Retention

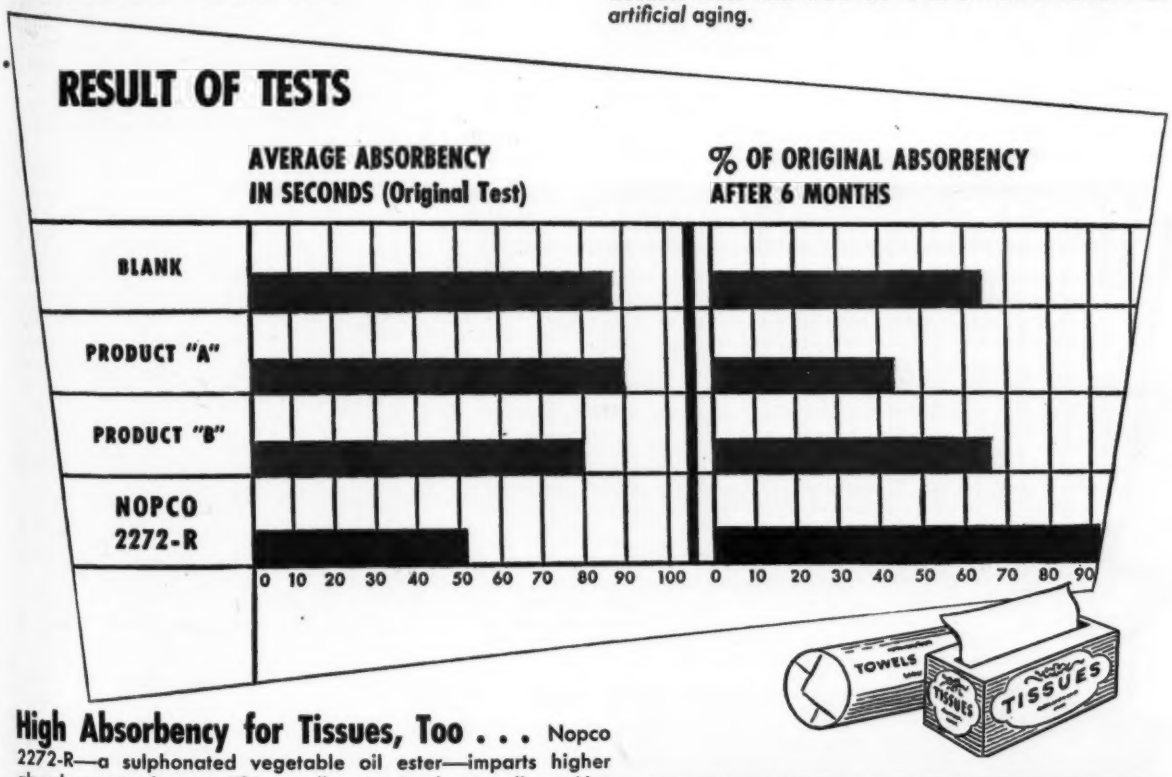
The absorbency tests, described below, show that in resisting the natural tendency of paper sheets to lose absorbency, NOPCO 2272-R has a clear-cut advantage over other absorbency materials. Even more important, regular mill users have already verified the results of these laboratory tests. To an increasing extent they count on NOPCO 2272-R to "stay with the fibers"—to assure more enduring absorbency in the *finished sheet*.

Testing Techniques Used... Sheets treated with three leading absorbency agents, including NOPCO 2272-R, and a separate group of sheets made from untreated stock were used in the tests.

Each product was added in the laboratory beater to stock composed of 300 grams of unbleached spruce sulfite and 200 grams of bleached aspen sulfite pulp dispersed with 12 liters of water. The stock was intentionally beaten to produce a harsh sheet, considerably below normal absorbency. Several hand sheets were made for testing purposes, following standard procedure.

Some sheets from each group were tested immediately for absorbency. Other sheets were tested at regular intervals for six months. Absorbency was measured by recording the time for 1 drop of distilled water to be absorbed completely into the sheet. Greater accuracy was assured, because these tests were the result of *natural* rather than *artificial* aging.

RESULT OF TESTS


AVERAGE ABSORBENCY IN SECONDS (Original Test)
% OF ORIGINAL ABSORBENCY AFTER 6 MONTHS
BLANK
PRODUCT "A"
PRODUCT "B"
NOPCO 2272-R
0 10 20 30 40 50 60 70 80 90 100
0 10 20 30 40 50 60 70 80 90

High Absorbency for Tissues, Too . . . Nopco 2272-R—a sulphonated vegetable oil ester—imparts higher absorbency to tissue stock as well as to regular toweling. Also successfully used in the manufacture of specialty papers, because Nopco 2272-R is compatible with solutions or dispersions of synthetic resins added to impart wet strength. Economical—only small amounts needed. Write for further details.

NATIONAL OIL PRODUCTS CO., Harrison, N. J.,
Branches: Boston; Chicago; Cedartown, Ga.; Richmond, Calif.

NOPCO

"An Affiliate of the American Pulp and Paper Mill Superintendents Associates".

REG. U. S. PAT. OFF. **EVOLVED THROUGH RESEARCH**

NOPCO 2272-R
For Higher Absorbency

Newspaper Stocks Down Six Days

Daily newspapers reporting to the American Newspaper Publishers Association show that stocks of newsprint paper on hand were 29 days' supply at the end of March, 1946, which is a decrease of six days' supply compared with stocks on hand at the end of February, 1946. This 29 days' supply at the end of March, 1946, compares with 46 days at the end of March, 1945; 48 days at the end of March, 1944; 56 days at the end of March, 1943, and 36 days at the end of March, 1941. This 29 days' stocks in hands of publishers is the lowest since 28 days at the end of November, 1936, and 29 days at the end of June, 1936.

The inventory regulation of the Civilian Production Administration, amended Jan. 22, 1946, permits a ceiling of 30 days in some states and 50 days in other states. The ANPA figures are an average for the entire country.

Daily newspapers reporting to the ANPA consumed 267,711 tons of newsprint paper in March, 1946, compared with 202,802 tons in 1945, and 258,518 tons in 1941. This was an increase in March, 1946, over March, 1945, of 32.0% and an increase over March, 1941, of 3.6%. 1941 was the base year for calculating allowable use by newspapers under WPB Order L-240 until revoked effective Dec. 31, 1945.

The total estimated newsprint consumption in the United States for March, 1946, was 377,058 tons which includes all kinds of uses of newsprint paper. For the first three months of 1946 it was estimated to be 1,002,830 tons.

During the first three months of 1946 the reporting newspapers used 712,009 tons of newsprint, an increase of 26.5% over the first three months of 1945 and an increase of 0.6% over the first three months of 1941.

Container Earns $1,032,787 In First Quarter

CHICAGO, Ill. — Consolidated net profit of Container Corporation of America for the three-month period ended March 31, 1946, amounted to $1,032,787 compared with $479,045 for the similar period for 1945, equivalent to $1.32 and $0.61 per share, respectively, on each of the 781,253 outstanding shares of capital stock These respective earnings are net after all charges, including depreciation, provision for year-end adjustments, and all taxes.

Net sales for the three-month period amounted to $18,401,595 compared with $18,202,975 for the same period the previous year, an increase of 1.09 per cent. The tonnage decreased approximately 1 per cent. Profit before Federal income taxes dropped from 11.31 per cent on sales in the 1945 quarter to 9.05 per cent in 1946. Net profit increase was more than accounted for by the elimination of excess profit taxes and lower reserves.

Limited Leeway On Pulp Costs

WASHINGTON, D. C.—To facilitate the production of pulpwood in the northeastern part of the United States, pulpwood producers there have been given more leeway in negotiating prices for subcontract services, by the Office of Price Administration. This action, effective April 22, 1946, permits a producer to pay whatever he cares to for an individual service, but the aggregate of all his service payments, plus stumpage, must not exceed the appropriate ceiling price for the pulpwood. The area affected comprises Maine, Vermont, New Hampshire, New York, and that part of Connecticut and Massachusetts west of the Connecticut River.

Services sometimes contracted for by pulpwood producers include cutting, bucking, hauling, felling, skidding, yarding, peeling, loading, trucking, driving, booming and rafting pulpwood also the building of roads and camps.

OPA said that subcontractors heretofore were frozen to their March 1942 prices, were not granted an individual adjustment by the agency, and that applications for adjustment, generally the rule, involved burdens on both the industry and OPA that could be dispensed with.

The agency pointed out that, while the change might cause increases in payments to some contractors, there might be decreases in other cases, and, in any event, the aggregate of paypments, together with stumpage, could not exceed the pulpwood's ceiling price. Hence, there was no danger of an inflationary rise in prices paid these contractors.

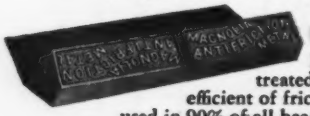
A number of minor changes, generally simplifying procedure, were also made to the regulation governing pulpwood logging services in the northeastern area. These changes were made after consultation with the industry.

Homer Lake Opens Own Office

Homer M. Lake has opened his own office at 21 East 40th Street, New York City, where he will operate as the Lake Paper Company and deal in wholesale paper and board, catering to merchants and the converting trade. Mr. Lake was for many years associated with the Pulp and Paper Trading Company, and more lately with Trinity Bag and Paper Company. He is widely known in the industry and is considered to possess an exceptional and comprehensive knowledge of paper and paper making in all its phases. It is reported that Mr. Lake plans to establish certain well known lines which will shortly be available to his customers.

60 YEARS OF PROVEN PERFORMANCE!

Continued research, production and development of bearing metals and base alloys since 1886 qualify Magnolia Metal Company to recommend the right bearing metal for each application. These popular examples are well known to Magnolia dealers in your industry.



FOR SPEED AND UNIFORM LOADS:

MAGNOLIA Anti-Friction Metal, a graphite treated, self-lubricating alloy, has the lowest coefficient of friction of any known bearing metal. It is widely used in 90% of all bearing operations where steady, high speeds and uniform loads prevail. Typical examples are in line shafting, roll bearings, conveyor bearings, electric motors above 10 H.P. and general purpose bearings.

FOR SHOCK LOADS:

Defender Bearing Metal is carefully alloyed for malleability, strength and toughness to withstand heavy shock loads. Continuously used in the bearings of Jordan heaters, pumps and steam engines, this shock-proof metal assures excellent service.

FOR CONSTANT HEAVY LOADS:

Pyramid Bearing Metal has given veteran performance under high heat and heavy load conditions. Characteristic of its resistant capacities under severe service is its continued use in calender stacks, and larger electric motors.

More than 100 uses of Magnolia Bearing Metals are outlined and illustrated in our 8 page bulletin. Write for your copy today.

MAGNOLIA METAL COMPANY, 18 W. Jersey St., Elizabeth 4, N. J.

"Look for the flower brand"

MM-101

MAGNOLIA BEARING METALS

New Developments in Synthetic Latex

FOR THE PAPER INDUSTRY

Foil-to-Paper Laminants

General Latex has recently developed a synthetic latex compound for laminating aluminum foil to paper. Water-resistant and possessed of excellent adhesive and aging qualities, its moderate cost offers substantial savings over laminants previously employed for the same purpose. For high MVTR packages — food, drugs, cigarettes; reflector insulation, household insulation, box wraps, labels, display mounts, etc. — this laminant is the answer to the converter's problem.

Saturants for High-Bulk Papers

This synthetic rubber latex compound and its derivatives, custombuilt to your individual requirements, are adaptable to all products which use high-bulk papers as a basic material. Manufacturers of imitation leather, and similar flexible materials for luggage, belts, bookbinding materials, shoe trimmings, etc., will find these "tried and proven" saturants highly satisfactory for the impregnation of their synthetic materials. Our large technical staff and extensive laboratory facilities are always available to help you in developing the best compound for your particular material.

General Latex & CHEMICAL CORP.

666 MAIN STREET, CAMBRIDGE, MASS.

Vultex Division — Verdun Industrial Buildings, Verdun, Montreal, Quebec

Agents for Rubber Reserve Company for storage and distribution of natural rubber latex.
Distributors for Rubber Reserve Company for synthetic latex. Operators of the Government owned Baytown, Texas, synthetic rubber plant in collaboration with the General Tire & Rubber Co.

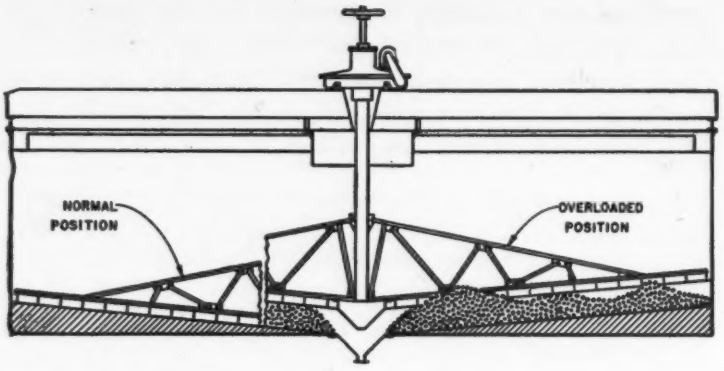
Taylor Names Four To Research Work

ROCHESTER, N. Y.—The Taylor Instrument Companies has appointed N. B. Nichols as Director of its Research Division. He succeeds Dr. H. L. Mason who resigned to accept the professorship of Mechanical Engineering at Iowa State College, Ames, Iowa. Mr. Nichols has, for the past four years, been associated with the Radiation Laboratory, Cambridge, Mass., a subsidiary of the Massachusetts Institute of Technology, where he was in charge of a group that pioneered in developing numerous mechanisms required in automatic gunfire control.

The Research Department is undergoing considerable expansion. Two physicists, Dr. Carlton W. Miller, and Dr. William A. Mersman, both of the Radiation Laboratory, will come to Rochester soon after May 1. Walter G. Countryman, former U. S. Army Captain, has returned.

The Taylor Research Division has for many years carried on industrial research and development and it is the policy of the company to continue the expansion of this type of work. Mr. Nichols will accordingly be charged with the supervision of a large variety of scientific projects leading to the development of new products for use in both home and industry.

HARDINGE "AUTO-RAISE" THICKENERS AND CLARIFIERS ELIMINATE COSTLY BREAKDOWNS



Here's why **. . . The "Auto-Raise" mechanism *automatically* raises the scrapers over any obstructions in the bottom of the tank.**

Use of spiral scrapers which move settled solids from the periphery to the center in about 1¼ revolutions means that the Thickener or Clarifier can be operated at slower speeds. Agitation is less, and less effort is required to move the scrapers because of less solids on the bottom.

These units are ideally suited for treating waste water and for processing steps in the pulp and paper industry. One Hardinge Thickener, installed in a paper mill in 1926, has given uninterrupted service for 20 years.

HARDINGE COMPANY, INCORPORATED • YORK, PENN.
NEW YORK 17—122 E. 42nd St. • 205 W. Wacker Drive—CHICAGO 6
SAN FRANCISCO 5—501 Howard St. • 200 Bay St.—TORONTO 1

OBITUARY

James S. Wemyss

DAYTONA BEACH, Fla. — James S. Wemyss, sixty-seven, of Northumberland, N. H., president of four paper mills, died here Wednesday of a cerebral hemorrhage in his winter home.

Mr. Wemyss was born in Brooklyn. A pioneer in the processing and manufacture of tissue paper products, he was president of the Rushmore Paper Mills, Gouverneur, N. Y.; the Wyoming Valley Paper Mills, Northumberland; the Groveton Paper Company, Groveton, N. H., and the Lot Binere Pulp and Paper Company, Danville, Quebec.

Surviving are his wife, Mrs. Margaret Campbell Wemyss; a daughter, Mrs. Robert Hiatt; a son, James C. Wemyss, and a brother, Courtney T. Wemyss.

Arthur F. Allen

Arthur Allen of the International Paper Sales Company, New York, N. Y., died in Atlantic City, N. J., on March 31st. Mr. Allen was born in North Creek, N. Y., in 1887 and served in the Air Corps in the first World War. He was formerly connected with the Finch, Pruyn Company, the Tidewater Paper Mills and the Canadian Newsprint Company. He was assistant manager of the International Paper Sales Company with whom he was associated for the past 17 years. Mr. Allen was a member of the Technical Association of the Pulp and Paper Industry. He is survived by his wife, Mrs. Mabelle D. Allen; a stepdaughter, Mrs. Charles Glett; his mother, Mrs. Martha E. Allen; and a brother, Fred Allen, manager of manufacturing for the Canadian International Paper Company in Montreal.

William P. Feeney

APPLETON, Wis. — Funeral services were conducted April 9 at St. Joseph church in this city for William P. Feeney, 70, inventor of the Feeney Felt Drying System and widely known as a paper industrialist. Death occured Saturday morning, April 6, at his home after a year's illness. Mr. Feeney had been a resident of Appleton since his retirement from business 11 years ago. Survivors include his widow; two daughters, a son and a foster son, one brother, and 11 grandchildren.

John C. Shea

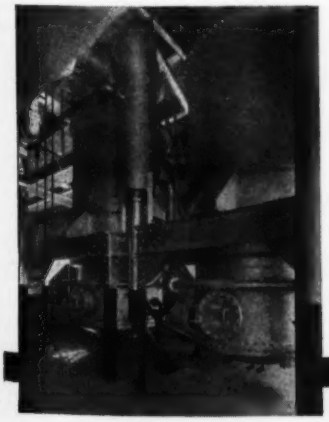
HOLYOKE, Mass. — John C. Shea, sales manager for the Eureka Blank Book Co., for the past 40 years, died at his home recently after a brief illness. Born in Quebec on October 30, 1870, Shea joined Eureka at the age of 18 as soon as he graduated from high school. He became sales manager in 1906.

The dean of traveling salesmen in Holyoke, Shea traveled continually for 40 years and made his last trip less than two weeks before his death.

He is survived by his wife and two daughters.

SEXTUPLE-EFFECT EVAPORATION FOR *Greater Economy*

Sextuple-effect installations of Swenson Long Tube Vertical Evaporators are setting new standards of steam economy—the major factor in evaporation cost. Efficient operation with low temperature drop per unit makes possible the higher steam economy obtained.



Swenson Surface Condensers installed on an L.T.V. Evaporator.

Many Swenson sextuple-effect installations incorporate a newly developed Multiple Pass heating element in the first evaporator body. It improves heating surface proportioning, reduces space requirements, and contributes to lower processing costs.

The high capacity and efficient heat transfer of Swenson L. T. V. Evaporators—resulting from sixty years' evaporator experience—is an important factor in lower evaporation costs. Write for a descriptive bulletin.

- Black Liquor Evaporators
- Pulp Washers • Lime Sludge Filters
- Causticizers • Digester Blow Condensers
- Surface Condensers
- Kraft Pulp Deckers

SWENSON

SWENSON EVAPORATOR COMPANY

Division of Whiting Corporation
15687 Lathrop Avenue, Harvey, Ill.
Export Dept.: 136 Liberty St., New York 6, N. Y.

New York Paper and Pulp Market Review

Slicks Tax Groundwood-Free Paper Supply — New Woodpulp Prices To Bring Industry Relief — Mills More Critical of Waste —Little Norwegian Woodpulp Expected Before July—Rags Tight.

Office of the PAPER TRADE JOURNAL, Wednesday, April 17, 1946.

All-over demand for paper and paperboard continues in excess of supply. The great increase in the use of slick magazines of the machine coated groundwood-free paper is taxing the supply of this type paper. Heavy demand for book paper, uncoated and coated, is also noted in trade reports. Orders for newsprint and publication paper are still far above supply.

New OPA ceiling increases for woodpulp, effective this week, are expected to bring relief soon to the paper trade as a whole. While supplies may not show much improvement for the next six months, dealers may be expected to relax their grip on dwindling inventories.

The index of general business activity for the week ended April 6 declined to 127.3 from 134.0 in the previous week, compared with 140.1 for the corresponding week in 1945. The index of paperboard production fell to 162.9, compared with 165.2 in the previous week, and with 145.4 for the corresponding week in 1945.

Paper production for the week ended April 6 was estimated at 104.1%, compared with 86.8% for the corresponding week in 1945, with 92.0% for 1944, with 89.9% for 1943, and with 98.9% for the corresponding week in 1942.

Paperboard production for the week ended April 6 was 99.0%, compared with 92.0% for 1945, with 94.0% for 1944, with 95.0% for 1943, and with 93.0% for the corresponding week in 1942.

Rags

Demand for new cotton cuttings is strong with the market remaining tight. Production is reported increasing with supplies slowly improving. Dealers bids are high at ceiling levels.

Foreign dark cottons are offered in some volume. Mills show little interest in quotations over $70 per ton, and try to buy at $60 to $65, ex-dock. British packed blue jeans and old khakis have dropped to 4c from 4.50 and 4.75 per pound ex-dock.

Supply of domestic rags continues to improve. Mills offer $60 to $70 f.o.b. point of shipment for heavy wipers in combination deals for classification roofings at $29 and $31.

Wood Pulp

Pulp producers and importers anticipate increased production of wood pulp here and abroad with new ceiling increases applying to both domestic and imported wood pulp in effect this week.

Swedish wood pulp production has been held to around 66% capacity, sufficient to supply British and Latin American needs. Now Sweden is expected to reach record production to meet North American demands at satisfactory prices.

Little or no tonnage of Norwegian wood pulp is expected here before July. Until that time Norway will need pulp for her own paper and board mills; but after mid-year exports from Norway should show a steady increase.

OPA's new wood pulp ceilings should go a long way to alleviate Canada's labor problem, and stimulate greater production with increased wages.

Old Rope and Bagging

Market remains firm with renewed interest in sisal. Sisal is 4.75 and Manila 5.75. Strings are unchanged at 5 to 5.50 for jute. Mixed strings are sluggish except those suitable for sorting.

Mill trading in scrap bagging is limited. The market is irregular with prices firm and unchanged. Supplies are still reported as limited.

Waste Paper

Demand continues heavy as consumers build inventories. Supply is improving and mills are more critical of quality. Dealer market on bundled news is $15 per ton compared with the previous $17 to $19 per ton.

Peninsular Paper Withdraws From the Open Market

YPSILANTI, Mich.—Its forced retirement from the open market for the balance of this year has been made known to the trade by the Peninsular Paper Company. Its bulletin declares:

"Due to the unprecedented large volume of incoming orders, plus the shortage of pulp and resultant shortage in operating time, it has been necessary for us to withdraw from the market for the balance of 1946. It is our sincere intention and endeavor to continue to fill small stock orders, for mill advertised lines, for those agents who have carried our mill brands for many years, but our present commitments, in view of the above mentioned shortages, force the drastic action, on our part, of withdrawing from the open market."

Boston Trade Will Play

BOSTON—The outing of the Boston Paper Trade Association will be held June 10 at the Charles River Country Club.

Open Billing Anticipates Rise in Casein Price

WASHINGTON, D. C. — Producers of industrial casein may now sell casein at present ceiling prices and bill the purchaser for an additional amount as soon as the Office of Price Administration announces new and higher ceilings, OPA has ruled. This adjustable pricing arrangement, effective April 10, was necessary, the agency said, to make possible continued domestic production of casein.

Present supplies of this casein are dwindling, largely because foreign prices have gone far above the present domestic ceiling of 24 cents a pound. Thus, no importation is possible, OPA pointed out.

OPA is now considering cost data and expects to announce shortly a new ceiling that will make it possible to get the increased domestic production essential to the manufactured products that use casein as an ingredient.

Pennsalt Names Moffitt To West Coast Post

PHILADELPHIA — T. E. Moffitt has been named sales manager of the Pennsylvania Salt Manufacturing Company of Washington, a subsidiary of the Pennsalt Company which has its headquarters here. Mr. Moffitt will be in charge of all heavy chemical sales activities in the Tacoma and Portland, plants. His headquarters will be at Tacoma.

Mr. Moffitt, a graduate of the Hill School, Pottstown, Pa., and Cornell University, where he majored in chemistry, moved to Seattle, Wash. in 1923 after serving in Naval aviation during the first World War.

Before joining Pennsalt, Mr. Moffitt was western sales manager for the Hooker Electrochemical Company at Tacoma and was recently engaged in special sales development for the Weyerhaeuser Timber Company at Longview.

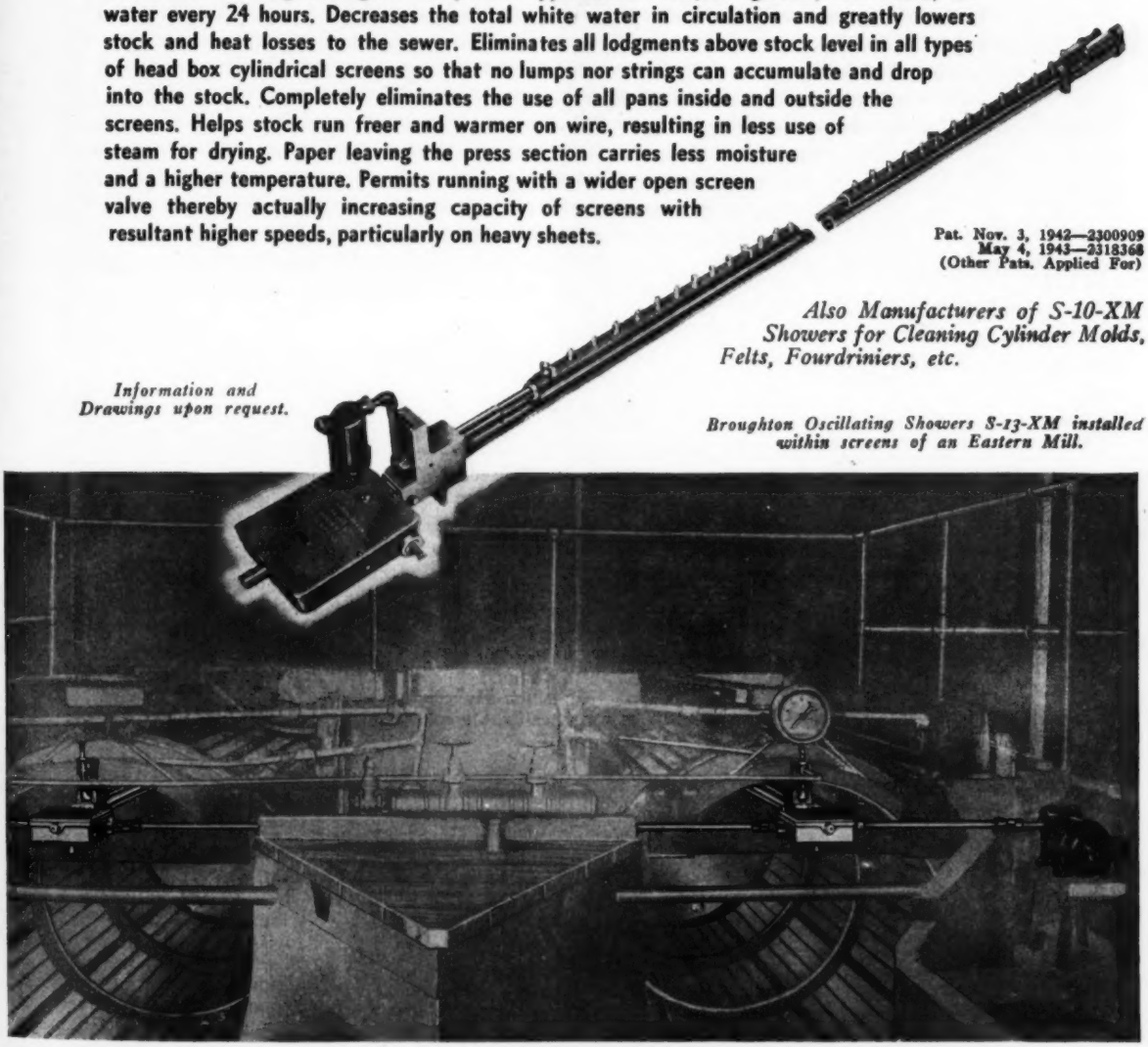
Continental Can Names Jennings in Southeast

John Jennings has been appointed southeastern district manager of paper container sales for the Continental Can Company. Mr. Jennings' sales territory will include North and South Carolina, Georgia, Florida, Mississippi, Louisiana, Alabama, and parts of bordering states. His headquarters will be in Atlanta. A graduate of Michigan State College, Mr. Jennings has been in the paper and paper products business for some 20 years.

The BROUGHTON S-13 Oscillating Shower

effects large savings in water... steam... and operating efficiency of Rotary Screens

Requires less than 5 gallons per minute of fresh, filtered water to do a thorough job of continuous cleaning. Savings in many mills approximate 100,000 gallons, and more, of water every 24 hours. Decreases the total white water in circulation and greatly lowers stock and heat losses to the sewer. Eliminates all lodgments above stock level in all types of head box cylindrical screens so that no lumps nor strings can accumulate and drop into the stock. Completely eliminates the use of all pans inside and outside the screens. Helps stock run freer and warmer on wire, resulting in less use of steam for drying. Paper leaving the press section carries less moisture and a higher temperature. Permits running with a wider open screen valve thereby actually increasing capacity of screens with resultant higher speeds, particularly on heavy sheets.



Pat. Nov. 3, 1942—2300909
May 4, 1943—2318368
(Other Pats. Applied For)

Also Manufacturers of S-10-XM Showers for Cleaning Cylinder Molds, Felts, Fourdriniers, etc.

Information and Drawings upon request.

Broughton Oscillating Showers S-13-XM installed within screens of an Eastern Mill.

A. E. BROUGHTON & COMPANY

Manufacturers of mechanically operated Oscillating Showers, and Unit Vacuum Controls for paper machine suction boxes.

GLENS FALLS, N. Y.

Imports of Paper and Paper Stock

Giving Manifests of Ships Arriving At Port of New York With Cargo of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

NEW YORK IMPORTS WEEK ENDING APRIL 13 1946 SUMMARY

Newsprint .....5,970 rolls
Paperhangings .....69 pkgs.
Drawing Paper .....4 cs.
Filter Paper .....2 bls., 10cs.
Carbon Paper .....1 crate
Photo Base Paper .....59 cs.

NEWSPRINT

New York Journal American, *Markland,* Liverpool, N. S., 849 rolls.
N. Y. Tribune, Inc., *Markland,* Liverpool, N. S., 1340 rolls.
N. Y. World Telegram, *Markland,* Liverpool, N. S., 607 rolls.
Brooklyn Daily Eagle, *Markland,* Liverpool, N. S., 553 rolls.
Herald Statesman, Inc., *Markland,* Liverpool, N.S., 42 rolls.
Richmond Newspapers, Inc., *Markland,* Liverpool, N.S., 2579 rolls.

PAPERHANGINGS

C. A. Haynes & Co., *Ethiopia Victory,* London, 69 pkgs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., *Ethiopia Victory,* London, 4 cs.

FILTER PAPER

Stewart Dickson & Co., *Britain Victory,* Liverpool, 2 bls.
H. Reeve Angel & Co., Inc., *Ethiopia Victory,* London, 10 cs.

CARBON PAPER

—— *Britain Victory,* Liverpool, 1 crate.

PHOTO BASE PAPER

Intercontinental F'd'g. Co., Inc., *Ethiopia Victory,* London 59 cs.

RAGS, BAGGINGS, ETC.

Darmstadt, Scott & Courtney, *Ringleader,* Buenos Aires, 610 colored cotton rags.
—— *Spartanburg Victory,* Glasgow, 637 bls. paperstock .
Continental Bank Trust Co., *Spartanburg Victory,* Glasgow, 229 bls. old rags.
Padawer & Co., *Great Falls Victory,* Liverpool, 75 bls. cotton waste.
—— *Lord Glentoran,* Liverpool, 106 bls. wool rags; 109 bls. wool thread waste; 55 bls. old linens.
—— *Ocean Vengeance,* Rio de Janeiro, 130 bls. cotton picker waste; 48 bls. cotton fly waste.
E. Butterworth & Co., Inc., *Britain Victory,* Liverpool, 75 bls. old pickers.
Glaser Jaffe Wool Stock Corp., *Britain Victory,* Liverpool, 10 bls. wool rags.
A. W. Fenton Co., *Talisse,* Amsterdam, 197 bls. rags.
Padawer & Co., *Nurtureton,* Rio de Janeiro, 102 bls. cotton waste.
Royal Manufacturing Co., *Nurtureton,* Rio de Janeiro, 148 bls. cotton picker waste.

OLD ROPE, ETC.

P. J. Schweitzer, Inc., *Andrew Jackson,* Calcutta, 261 bls. old hemp rope cuttings.
D. M. Hicks, Inc., *Andrew Jackson,* Calcutta, 125 bls. old hemp rope cuttings.
W. J. Green Co., *Andrew Jackson,* Calcutta, 79 bls. old hemp rope cuttings; 104 coils old rope.

HIDE CUTTINGS, ETC.

J. Gorvers, *Cape Fear,* Cristobal, 835 bags hide cuttings.
Trans Atlantic Animal By-Products Corp., *Lord Glentoran,* Liverpool, 286 bags hide cuttings.
E. Butterworth & Co., *Britain Victory,* Liverpool, 110 bags hide cuttings.
H. Remis, *Coastal Challenger,* Havana, 383 bls. glue stock.
M. Fanto & Co., *Nurtureton,* Rio de Janeiro, 280 bags sheet bone glue.
Trans Atlantic Animal By-Products Corp., *Nurtureton,* Rio de Janeiro, 300 bags sheet bone glue.

CASEIN

1st of Boston International Corp., *Great Falls Victory,* Buenos Aires, 3700 bags lactic casein (ground), 397,851 lbs.
R. F. Downing & Co., Inc., *Ethiopia Victory,* London, 105 drums casein.
National City Bank, *Ocean Vengeance,* Buenos Aires, 4072 bags lactic casein.

BOSTON IMPORTS

Week Ending April 13, 1946

New England Waste Co., *Nurtureton,* Rio de Janeiro, 116 bls. cotton waste.
—— *Ocean Vengeance,* Santos, 700 bags boneglue.

PHILADELPHIA IMPORTS

Week Ending April 13, 1946

American Cotton Products Co., *Nurtureton,* Rio de Janeiro, 318 bls. cotton waste.

British Exports Widely Scattered

LONDON, England—Sir S. Cripps recently reported to Parliament, in response to a request, that the total quantity of paper exported by Great Britain during the six months from August, 1945, to January, 1946, was 14,846 tons. Details of the countries of destination for exports of paper only are not readily available, but below is a table showing the principal countries for paper and board combined. In the period in question, exports of board amounted to 4,980 tons —only one-quarter of the total export.

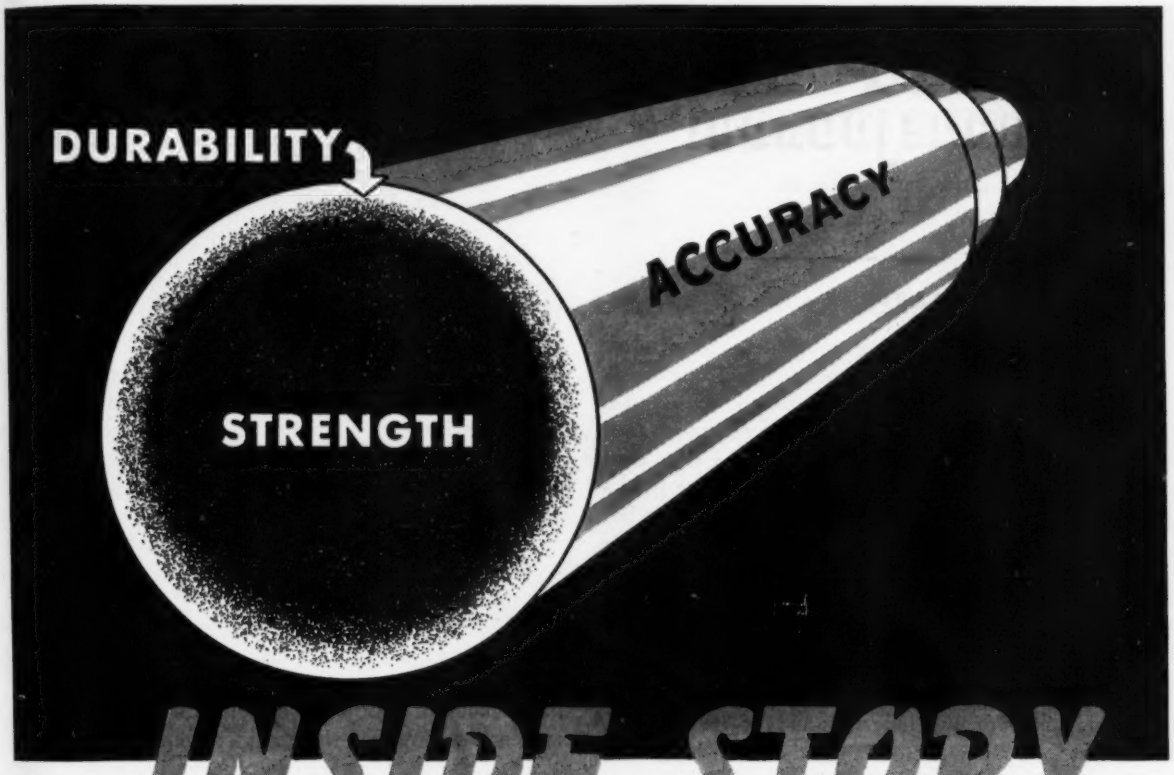
United Kingdom exports of paper, cardboard, etc., from August, 1945, to January, 1946:

Country to which Consigned	Quan. Tons
Eire	3,069
Australia	2,585
British India	2,266
New Zealand	1,171
British East Africa	1,070
Union of South Africa	984
British West Africa	981
Ceylon	766
British West India Islands	262
Other British countries	1,795
Netherlands	1,024
United States of America	745
Argentine Republic	640
Belgium	232
Other Foreign countries	2,236
Total	19,826

Neenah Addition Readied For July Occupancy

NEENAH, Wis.—Neenah Paper Company's new addition is expected to be ready for occupancy by July 1. Only the fourth floor walls of the $90,000 structure remain to be bricked. The addition will be completely used as factory space, with no walls in the interior except for one small office shipping room.

After the building has been completed, construction crews will begin work on the loading dock, which will be 27 feet long and will result in the elimination of some of the balustrade on the bridge. Crews are waiting for high water to recede to begin work on the tunnel underneath the railroad trestle, which separates the new addition from the office.



INSIDE STORY

of a ROLL with a long FUTURE

FARREL PAPER MILL MACHINERY

ROLLS: Chilled Iron, Dry Sand, Meehanite, Alloy Iron, Steel, Chromium Plated
FOR: Calender Stacks
Board Calenders
Super Calenders
Glassine Calenders
Friction Rolls
Breaker Rolls
Smoothing Rolls
Coating Rolls
Creping Rolls
Plater Rolls
Cutting Rolls
Paraffining and Waxing Rolls
Saturating Rolls
Silicating Rolls
Miscellaneous Special Purposes
CALENDERS: Paper and Board
GRINDING MACHINES: Roll
CALIPERS: Roll
GEARS, CUT: Spur, Single and Double Helical (Farrel-Sykes Continuous Tooth Type)
SPEED REDUCING GEAR UNITS
SPEED INCREASING GEAR UNITS
FLEXIBLE COUPLINGS

The extra-long service life of Farrel calender rolls is a result of these Farrel abilities – (1) knowledge of correct materials for various requirements; (2) skill and control in casting; (3) extreme accuracy in machining and grinding.

The white iron "skin" or chill of a Farrel roll provides an extremely hard face, capable of taking a very smooth finish. It is clear and deep enough to give the roll long-wearing durability, but not so deep that it will detract from the strength of the roll, which lies principally in the gray iron structure of the body.

Farrel has the specialized experience and equipment in *America's largest specialty roll shop* to produce accurately shaped rolls from 5" to 72" in diameter and up to 312" face. The correct amount and shape of crown, required for bottom and next-to-bottom rolls of a calender, are produced with unerring accuracy. Rolls not requiring crown are made round and straight to tolerances as close as a quarter of a thousandth inch.

When you need rolls or other paper-making equipment listed at the left, call Farrel. Complete information and engineering help are available to you, without obligation. FB-315

FARREL-BIRMINGHAM COMPANY, INC.
ANSONIA, CONNECTICUT
Plants: Ansonia, Derby and Stonington, Conn., Buffalo, N.Y.
Sales Offices: Ansonia, Buffalo, New York, Pittsburgh, Akron, Los Angeles, Tulsa, Houston, Charlotte

Farrel-Birmingham

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

W. L. Cook, Editor

STORIES OF PAPER

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CALENDAR OF COMING EVENTS

June 17-20, 1946.—American Pulp and Paper Mill Superintendents Association, Annual Convention, Poland Springs, Me.

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Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1946		Corresponding Weeks—1945	
March 2	101.8	March 3	89.3
March 9	103.4	March 10	87.7
March 16	104.1	March 17	89.4
March 23	105.0	March 24	92.1
March 30	104.9	March 31	88.9
April 6	*104.1*	April 7	86.8

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1945	86.7	89.4	90.2	88.1	89.8	91.2	80.8	88.6	90.2	95.9	95.5	91.0	89.7
1946	94.7	98.4	*104.4*										

COMPARATIVE YEARLY SUMMARIES

	1939	1940	1941	1942	1943	1944	1945	1946
Year to Date	79.9	85.2	89.6	103.3	88.7	88.3	88.3	*99.1*
Year Average	83.4	85.6	97.4	90.4	87.8	88.1	89.7	

*Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

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March 2	98	March 3	96
March 9	99	March 10	94
March 16	100	March 17	95
March 23	99	March 24	99
March 30	100	March 31	100
April 6	99	April 7	92

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1945	91	95	97	97	96	96	86	90	91	97	95	85	93
1946	90	97	*100*										

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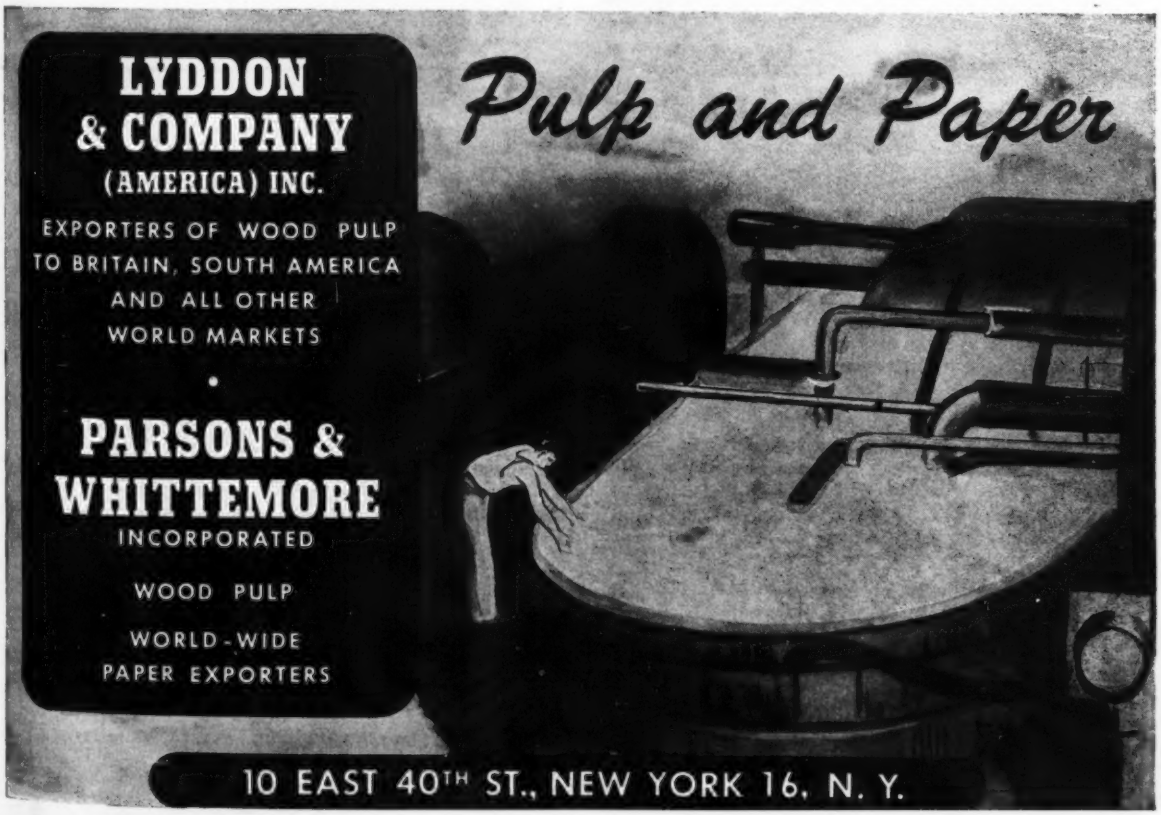

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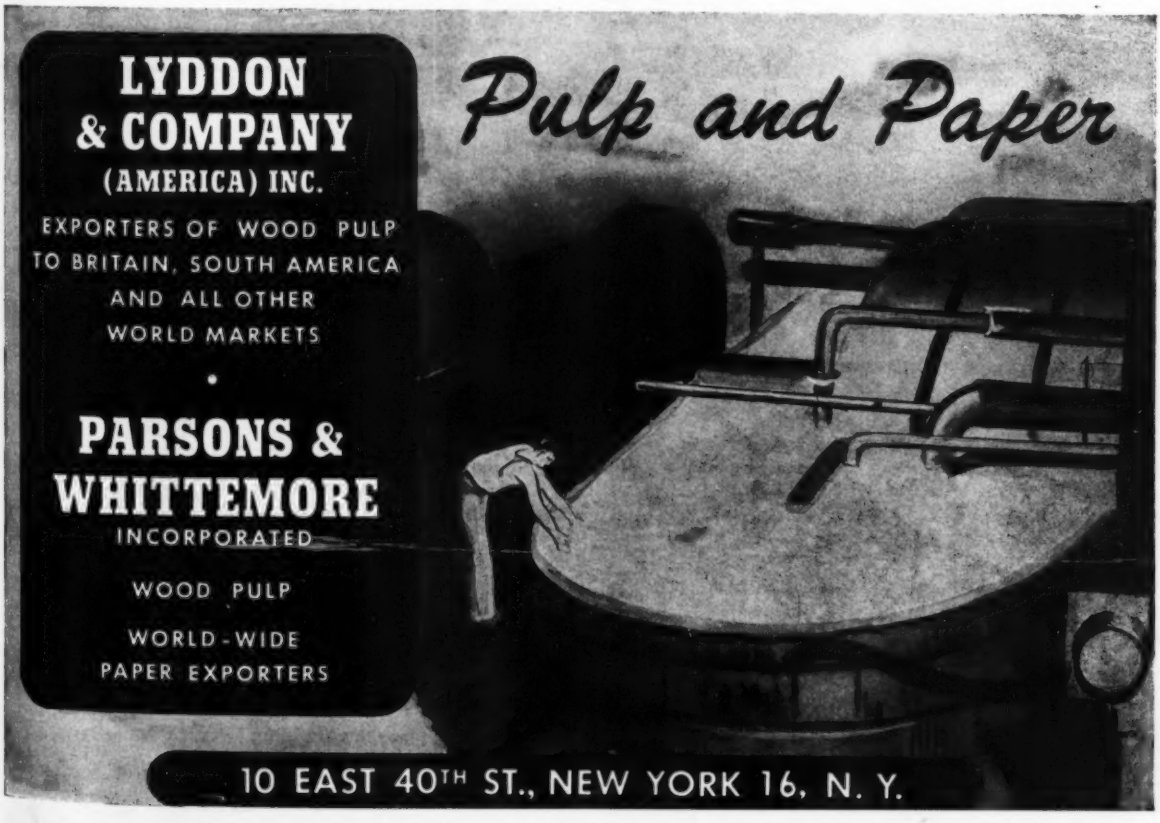

MAKE NEW MARKETS FOR PAPER with PAREZ** RESIN 607

New and wider uses for paper have been created by PAREZ resin 607, the synthetic paper resin that imparts superior wet and dry strength to all types of raw stock.

Soon, because of these unprecedented characteristics, wet strength paper may successfully replace cloth in the manufacture of bed sheets, pillow cases, towels, wash cloths, handkerchiefs, table cloths and napkins, and diaper backings.

The success of such new applications is assured by the remarkable performance of wet strength paper in wartime maps, toweling, food wrappers, containers, shipping tags, and field note books. Wet strength paper has also come into its own in the manufacture of absorbent papers, bag and sack papers, saturating papers, photographic papers, poster papers, twisting papers, and wrappings.

PAREZ 607 can be added directly to the fiber finish during paper manufacture. It serves to bind the fibers together with a bond that is insoluble in water and most other liquids. As the paper comes off the machine, tests reveal outstanding improvements in bursting and tensile strength, along with a pronounced increase in folding endurance. Furthermore, PAREZ bonding does not adversely affect such properties of paper as color, opacity, or surface characteristics.

For full details on the utilization of Cyanamid's melamine paper resin, PAREZ 607—which offers opportunity to endow your products with new sales features—see your Cyanamid representative or write to the nearest Cyanamid office.

American Cyanamid & Chemical Corporation

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Press Section of a Newsprint Machine*

A Study of Suction Presses and Their Relation to Drying Paper

By F. A. Garrett[1]

Abstract

The application of technical knowledge in the design of newsprint paper machines has far outstripped its application to the operation of making a sheet on such a machine. The design and use of wide high speed machines has been accompanied by a magnification of certain operating difficulties, particularly an increased tendency towards an uneven distribution of moisture across the width of the sheet and a tendency to overdry the sheet in order to restore a degree of uniformity in the distribution of moisture.

This paper directs attention to the desirability of applying technical knowledge to the control of the pressing operation. A brief description of types of press rolls is given with special reference to certain minor features which are considered by the author to have important effects on the behavior of the equipment.

References are made to certain well-known basic laws relating to the process and equipment. The factors affecting the distribution of nip pressure and the influence of this on the distribution of water in the sheet is discussed at length. The importance of accurate crowning of press rolls is emphasized. The range and limits of adjustment of nip pressure with any given crown are illustrated by test data.

The practice of manipulating the distribution of nip pressure for the purpose of compensating for defective drier operation is described and suggestions are offered regarding the reduction of such compensation, by correcting faults at their source.

The control of felt travel and its influence on the distribution of moisture is discussed and certain factors are suggested as having an important influence on it.

The use of test data for indicating the source of faulty water removal is illustrated by figures. Some limitations of existing methods of testing are mentioned and the desirability of improved methods of observation is emphasized.

The subject of this paper is the press section of the newsprint machine, particularly its functions and behavior. A detailed description of the equipment is unnecessary as the elementary laws of the process and equipment are familiar. There appears to be a fairly widespread idea that if these laws receive adequate consideration in the design of equipment, the operation will take care of itself automatically. At least, this is an impression which the author has obtained from the answers supplied by the mills of the industry in reply to a questionnaire on the "Press Section of Newsprint Machines," submitted by the Newsprint Service Bureau in 1940. The replies showed an extremely wide variation in practices followed, and in results obtained, with comparatively similar equipment. For instance, it was noted in the replies that the theoretical steam required, after pressing, varied from 4900 to 5900 pounds per ton of paper, i.e., over 20%. Another instance was the per cent of total breaks attributable to the press section. This varied from 5 to 90%. The location of the suction box in relation to the nip varied widely between machines in different mills and between machines in the same mill. The nip pressures and amounts of crown revealed similar wide variations in practice.

The development of the wide newsprint machines appears to have been accompanied by increased difficulty in maintaining a high and uniformly distributed moisture content in the finished sheet. Wet and dry streaks running in the machine direction are avoided only by unceasing vigilance. The press section is frequently adjusted to reduce such streaks, where they have developed, either before or after the presses. In other cases the presses themselves are the source of such streaks.

In view of the apparently wide incidence of these operating differences and difficulties throughout the industry it may be profitable to redirect the attention of mill engineers to some fundamentals. In general, the ideas and descriptions presented herewith are not new, but since they appear to be widely disregarded in machine operation, their repetition may prove to be of value, especially if it stimulates actual checking of existing conditions. The results obtained from some such checking and the subsequent efforts to bring the operating conditions more nearly into alignment with theoretical considerations are presented graphically.

Fundamental Aspects

The basic nature of the process of pressing may be illustrated by the theory of filtration as presented in the equation developed by Lewis *(1)*, for constant pressure filtration of compressible homogenous sludges.

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$$r'\Theta/(V/A) = (r''v\mu/2)\ P^s(V/A) + \phi'\mu P^m \qquad (1)$$

A = total area of filtering surface in square inches.
V = total weight of filtrate, pounds up to the variable time Θ.
v = volume of cake as it collects on the filter, cubic inch per pound of filtrate.
P = total pressure on filtering cake, p.s.i.
r = specific resistance of cake, i.e., the resistance of a unit cube $r'P^s$.
r'' = $r'(1-s)$
s = coefficient of compressibility of the sludge.
m = coefficient of plugging the filtering medium.
μ = viscosity of the fluid in the resistances.
$\phi'\mu P^m$ = resistance of press channels and "plugged" filtering medium, including the viscosity of the filtrate.

Presses differ in a number of minor details which will not be mentioned, but there is one major difference of very great importance, i.e., in the design of the main bottom roll. Two distinctly different types are in common use. In one type (plain), the water is forced out of the sheet by pressure only, and flows away from the nip, over the surface of the roll in a circumferential direction, and over the surface of the sheet in a lateral direction. The sheet, approaching the nip, must pass through this flood of filtrate. In the other type, the water is forced out of the sheet by a combination of pressure and vacuum and is carried away from the nip through, or by, closely spaced channels with the aid of vacuum. This type of roll is used in the wire section of the filtration operation as well as in these presses. The success of the modern wide, high speed, newsprint machines is based on it.

The suction roll, consists of a hollow cylindrical body, the shell of which is perforated by small regularly and closely spaced holes which provide a certain amount of open area, into which the water from the nip is drawn by vacuum which is applied to a narrow strip across the interior surface of the roll, immediately under the nip, through the medium of a long narrow box having an open slot somewhat wider than the width of press nip. This slot is surrounded by sealing strips which make sliding contact between the suction box and the roll surface. These strips may be firmly fixed or may be free to move perpendicularly to the roll face. In the latter case, they are usually supported on springs or soft rubber tubing. The suction roll shell is usually made of brass or bronze. The shell may, or may not, be covered with rubber. Stainless steel shells have been used to a limited extent and will probably supersede brass because of its superior strength and also because rubber adheres to it more durably than to brass. The open area in the roll surface varies widely. The answers to the questionnaire previously mentioned indicated a range from 10.8 to 52.3 square inches per square foot.

The top rolls are usually made of granite. This material has the property of releasing the sheet freely from its surface following intimate contact between them in the nip. Cast iron exhibits this property also, but its tendency to corrode makes it unsuitable. The development of hard surface coverings having this property for application to cast iron rolls has made some progress. Plain rubber is unsatisfactory in respect to this property. Mixtures of rubber with various other materials such as wood flour, water soluble salts, and crushed granite, have been developed with more or less success. The auxiliary loading applied to top rolls through the leverage system is customarily transmitted through the journal to the ends of the roll body. In a recent design, this load is applied at selected points within the roll body through a heavy central shaft.

Auxiliary loading is normally applied through the top press roll by means of a leverage system. This is usually an elementary type consisting of two first class levers with sleeve type bearings at the fulcrums and knife edge type bearings at the other points about which motion takes place, together with an intermediate third class lever having knife edge type bearings at all points about which motion occurs. These bearings are frequently very crude, permitting wide, unintentional, variations in the leverage ratios, and in the amounts of friction. In some modern machines, gear segments are used instead of simple levers and needle type roller bearings are used at all points about which motion takes place. The needle type roller bearings are being tried out at all points of motion in the simple type of levers in an effort to stabilize the ratio. The primary load on the levers may be a weight or may be air pressure applied through the medium of a diaphram motor or a cylinder. These latter are usually accompanied by a recorder.

The filtering medium or press felt used on newsprint machines may be woven single or double, and varies in weight from 1.8 to 3.6 ounces per square foot.

The filtering pressure, i.e., P in the Lewis equation, is supplied jointly by the weight of the top roll with its auxiliary loading and by the partial pressure of the atmosphere in the case of the suction press roll. It is dependent also on the length of the roll faces, on the diameters of the top and bottom rolls, on the modulus of elasticity of the structural materials of the roll bodies, and their covering materials, if any, and on the thickness and compressibility of the wool cloth felt.

The unit pressure developed by the load applied through the top roll varies with the width of the nip. Kent *(2)*, gives the following equation for the width of the contact area for hard surface cylinders:

$$b = 2.15\ \sqrt{P_1/E\ (d_1d_2)/d_1 + d_2)} \qquad (2)$$

b = width of contact area.
P_1 = load per inch of length in lb.
E = modulus of elasticity.
d_1 and d_2 = diameters of the cylinders.

Rubber covers on rolls materially extend the width of the nip. The increase varies with the thickness and plasticity of the rubber cover. Studies by Rees *(3)*, show that "the nip width varies directly with the thickness of the rubber on the roll." He also gives graphic illustrations of the nip width and of the distribution of pressure across it at various plasticities. It will be realized that the mean pressure per unit area is materially lower on rubber covered rolls, than on hard faced rolls, for any given load per lineal inch, but that the time of pressing is increased in proportion to the nip width.

The maximum pressure per unit of area applied to the sheet at each nip is limited by the strength of the wet sheet. This strength must be adequate to resist the pressure of the water flowing through its pores or deformation of the sheet will occur, even to the point of complete destruction of its sheet form, i.e., crushing. The sheet strength at any point in the filtering system depends on the forces bonding the fibers of the sheet and thus indirectly on the extent to which the water, which originally separated them, has been removed. It follows that the application of pressure on the sheet must not only be limited at each nip, but also that the limit is higher at each successive nip. For the economic removal of water, it is desirable to use as high pressures as is consistant with an acceptable degree of sheet deformation, and felt consumption. The rate of felt consumption increases rapidly with pressure on hard surfaced rolls and tends to offset the economic gains accruing from a high rate of water removal. Rubber surfaced rolls materially extend the upper limits of pressure consistent with a reasonable rate of felt consumption.

The distribution of pressure over the length of the

TABLE I.—ELASTIC CURVES

Value of k		DISTRIBUTION OF DEFLECTION: % of y_{max}										
		CL										End
	% $L/2$	0	10	20	30	40	50	60	70	80	90	100
0.0094	% y_{max}	100.0	98.8	95.2	89.4	81.3	71.2	59.4	45.9	31.4	15.8	0
0.01302	% y_{max}	100.0	98.9	95.5	89.9	82.2	72.5	60.9	47.6	32.9	17.0	0
0.0208	% y_{max}	100.0	99.9	96.0	91.0	84.0	75.0	64.0	51.0	36.0	19.0	0

nip may, or may not, be uniform. It is subject to variation by manipulation and also to unintentional variations of appreciable magnitude. These variations are based on, or occur in, accordance with the laws of beam deflection which may be written as follows:

$$y_{max} = k\, w\, L^3/EI \qquad (3)$$

y_{max} = maximum deflection at center.
k = a constant depending on the distribution of the load.
w = total weight on loaded portion of beam live and dead.
L = distance between supports.
E = modulus of elasticity of the structural material.
I = moment of inertia.

VALUES OF k FOR COMMON DISTRIBUTIONS OF LOAD

Value of k		Distribution
Fractional	Decimal	
5/320	0.00940	Load uniformly decreasing from supports to center.
5/384	0.01302	Load uniformly distributed over distance between supports.
1/60	0.01666	Load uniformly increasing from supports to center.
1/48	0.0208	Load concentrated at center.

In the case of press roll, the load is distributed over the length of the roll face and the points of support are beyond the ends of the roll face. The equation as modified by Smith *(4)*, to suit this condition, may be represented as follows:

$$y_{max} = k\, w\, (L^3/EI)\ (1 + 24\ U/5L) \qquad (4)$$

in which L is the length of the loaded portion of beam, i.e., face length of roll, and U is the distance from the ends of the loaded portion of the beam to the points of support, i.e., from the ends of the roll face to the center of the bearings. The value of U is usually within the limits of 7 to 15% of L, so the term $(1 + 24\ U/5L)$, does not vary sufficiently to vitiate the comparisons which are about to be made with regard to the values of k.

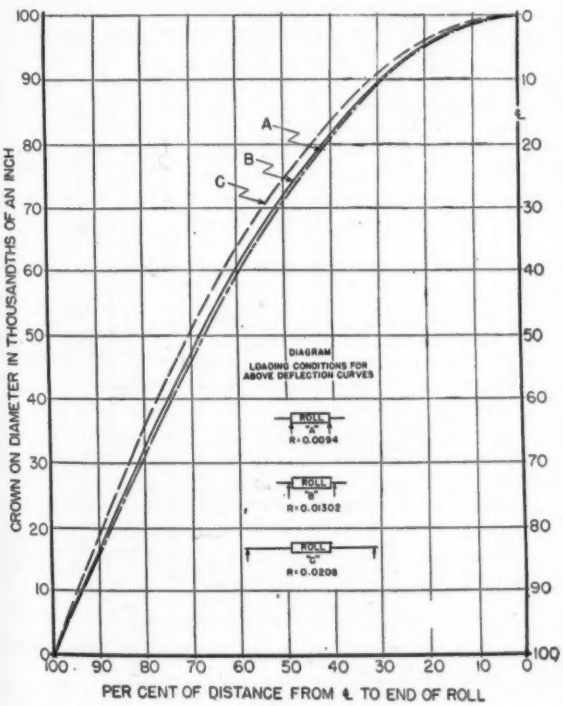

FIG. 1
Comparison of the Elastic Curve for Three Different Distributions of Load

Comparisons of the elastic curve for three different distributions of load, i.e., for three different values of k in equation 3, shown in Table I and also in Fig. 1.

It will be realized that a pair of dissimilar rolls, having their surfaces ground parallel with their axis, would tend to give a load distribution decreasing from the ends towards the center, i.e., corresponding with a value of k equal to 0.0094, or less. It is commonly assumed that a uniform distribution of load over the distance between the ends of the roll face, i.e., corresponding with a value of k equal to 0.01302, is desirable and customary.

A series of observations were made for the purpose of obtaining data regarding the approximate distribution of load actually used, and also regarding the distribution which resulted in the most even distribution of moisture in the finished sheet at the reel.

Press Roll Crown

The condition existing in sixteen presses were examined and compared by means of equation 4. The amount of crown on the radius each pair of rolls was measured and substituted for y_{max} in this equation. Actual values for w, L, U, and I, and the roll manufacturers value for E were also substituted. The equation was then solved for k. At the time of observing w, in each case, samples of the sheet were taken at points corresponding with distances 0 to 2 feet, 6 to 8 feet, and 11 to 13 feet, shown in Fig. 5. The differential in moisture content between the edges of the center of the sheet was determined from the samples taken at each press. This differential was plotted against the corresponding values of k. The data are presented in Fig. 2. It will be observed that the moisture at the edges of the sheet relative to the center is about even at values of k equal to 0.01302. At lower values of k the edges became progressively dryer. At higher values of k the edges became increasingly wet till k equalled 0.01666, at which point a reversal in trend occurs. This wide range in values of k may be surprising but is by no means unusual. The distribution of moisture across the sheet at the reel was found to be most uniform with values of k equal to 0.0147. The reason for this may be visualized by considering the graph for the rate of evaporation across the driers, shown in Fig. 5. The variation in rate of evaporation across the sheet at the driers, as shown there, is quite usual. The low rate at the center must be compensated if uniformity at the reel is to be obtained. The usual compensation is made by an adjustment of the press roll crowns and loading so that a distribution of load corresponding to a value of k equal to 0.0147 ± about 0.0015 according to the behavior of the drier section.

The crowning of the press rolls to match the deflection under the normal amount and distribution of load is of major importance in avoiding irregularities in moisture distribution. The most suitable amount and distribution of crown can be calculated for symetrical distributions of load. A discussion of such calculations by Smith *(4)*, points out in detail

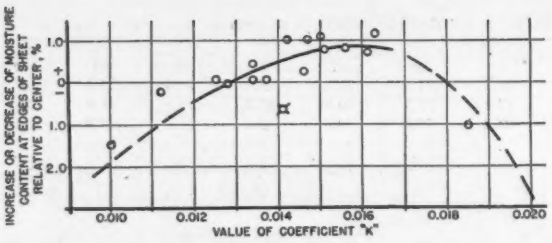

FIG. 2

Trend of Moisture Distribution with Value of K in Expression KWL^3/EI. Note: Variation in Moisture-Free Basis Introduced as Compensation Is Principal Cause of Deviation of Individual Points from Curve. Faulty Crown Existed in the Case Marked with an X.

the important considerations for many types of rolls. The procedure suggested by him is incomplete so far as perforated suction rolls are concerned. Three important features which occur in such rolls, did not receive sufficient attention in his published discussion. One of these is the loss of stiffness for which perforations in the shell are responsible. Satisfactory allowance for this can be made by adjustment of the value of the section modulus in the following manner. Calculate the solid area of a cross section of the drilled shell. Then, using the actual external diameter, calculate an internal diameter which will give an annular ring having an area equal to the calculated solid area. This has proved to be applicable with a wide variety of drilling patterns and hole sizes, *(5)*.

The second special feature of the suction roll is that the partial pressure of the atmosphere over the area of the suction box is part of the deflecting force and must be included as such in calculations of the deflection *(6)*.

The third unique condition is the auxiliary support given to the roll body by a suction box having fixed sealing strips. The amount and distribution of this extra support is a variable which should be eliminated by the use of loose sealing strips.

The force exerted by the weighted top roll on the nip is affected by its offset in relation to the bottom roll and by the location of the pivot point of the press roll arm. Both of these should be given consideration in estimating the effect of increasing or decreasing offset or in calculating roll crowns. Figure 8, shows the relationship among these variables diagrammatically. It will be observed that the nip pressure may be either increased or decreased by an increase in the amount of offset depending on the location of the pivot point with respect to a horizontal line through the center of the top roll *(6)*.

The press section may be responsible for introducing serious unintentional irregularities in the distribution of moisture across the sheet, i.e., wet and dry streaks. These faults in distribution may be produced by either the wool cloth filtering medium or by the distribution of pressure along the nip. There are such a number of variable factors, that in the paragraphs which follow, it will be necessary to assume that ideal conditions exist with respect to each factor except the one subject to specific comment.

Distribution of Load

The distribution of load on the nip will be considered first. In a press during operation the amount of crown y_{max}, and its contour is fixed, so the only variables in the equation of roll deflection are w and k. Any change in one of these, changes the other. Thus, by manipulation of the amount of load on the press levers the distribution of load along the nip is altered. Any distribution of load symmetrical about the center of the nip corresponding with the values of k between the limits of 0.01302 and 0.0166 may be used provided that the modulus of elasticity of the top roll is sufficient to effect a distribution of load approximating that which would obtain if the entire load were uniformly distributed within the roll body. In cases where the auxiliary loading on the top roll is greater than can be so distributed by it, the roll behaves as shown by the rate of water removal at the second press in Fig. 7.

This figure reflects two high pressure points. Unsymmetrical loading has caused these points to be off center towards the back. The deflection appears to be the result of a combination of load conditions, i.e., (a) part of the load uniformly distributed over part of the distance between the supports; and (b) another part of the load nonuniformly distributed having a considerable concentration at two points. The distribution of weight on the nip is such that a series of wet and dry streaks occur between the center and edges of the sheet. It is not unusual for this load condition to wear the felts excessively at the high pressure points. A reduction in the amount of crown and load tends to relieve this fault. Figure 6 shows the effect of such a change in this particular case. Note that one high pressure point has moved towards the center.

Any unsymmetrical distribution of load alters the bending curves of both the bottom and top rolls so that they do not synchronize with the contours ground into the roll bodies. Wet and dry streaks are bound to develop in the sheet passing such a press. These streaks are usually compensated and relieved by an abnormal distribution of stock suspension at the slice

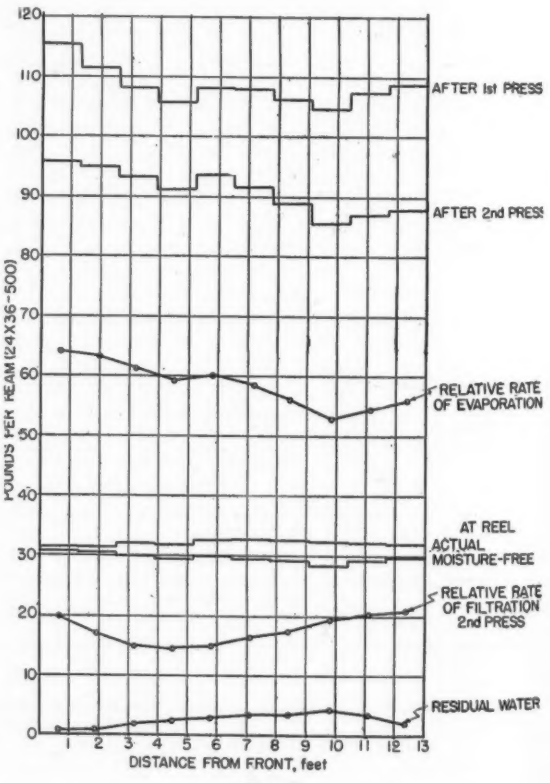

FIG. 3

Basis Weight Versus Distance from Front Edge of Sheet Following Various Machine Sections

or by overdrying the sheet at the driers, or by both means.

The character of the suction box seals and the adjustment of the suction box clearance inside the roll, is sometimes responsible for undesired variations in nip pressure, and sheet moisture. Where the fixed type of sealing strips are in use, it frequently happens that the box gives a measure of support to the roll body. In such cases the deflection of the roll is of course modified by the distribution of the points of support. It is practically impossible to reproduce the same distribution of support in successive settings of the box. It is doubtful if a satisfactory crown contour can be developed to match the deflection curve under such conditions. In presses where the loose sealing strips are correctly used, no support is given to the roll body by the box. The bending curve can be predicted, and matched with reasonable accuracy, in roll grinding so that wet and dry streaks from this source are eliminated.

Rigid inspection of the amount and contour of the crown ground into the rolls is a necessity which is frequently overlooked. It has been the experience of the author that the tolerances allowed at the roll grinder are frequently entirely outside the limits of the elastic curves for values of k equal to 0.0094 and 0.0208. Even these limits are much too broad for a reasonably efficient pressing operation. It is desirable to insure that the contour generated on the roll, by the roll grinder is within 1% at all points. With a roll grinder in good condition it is safe to assume that this degree of accuracy exists if it is found at intervals of $L/20$.

Plugging of press channels is a common cause of wet streaks at intervals across the sheet. This plugging occurs in the perforations of the shell and also in the mouth and throat of the box. The usual plugging material is wood fiber, wood flour, pitch, slime, and wool fiber. These materials accumulate on the walls of the holes and reduce their diameter. Experience on one group of machines indicates that when the net open area per square foot of surface is reduced to 22 square inches in a band on the first press, or to 15 square inches in a band on the second press, wet streaks occur in the sheet over these bands. Press breaks become numerous under such conditions because the wet streaked paper sticks to the top roll. These difficulties were observed at machines between 1200 and 1300 f.p.m.

Suction Box Adjustment

The adjustment of the suction box with respect to the center line of the nip and the wrap of the felt around the segment of the roll over the suction box require careful setting of the top roll and the suction box for efficient operation. The questionnaire previously mentioned presented strong evidence that one of these adjustments is frequently at fault and indirect evidence that the other may not receive adequate consideration. The essential considerations are that the suction box be sealed on the trailing edge of the box by the nip and on the leading edge of the box by the felt. If the center line of the nip is over or beyond the sealing strip on the trailing edge of the box, water is almost sure to be thrown back into the sheet. On the other hand, if the center line of the nip is over the mouth of the box, but at a distance equal to half the nip width from the inner edge of the sealing strip either of two undesirable conditions occur depending on whether the felt follows the top or bottom roll after leaving the edge of the nip. In the former case,

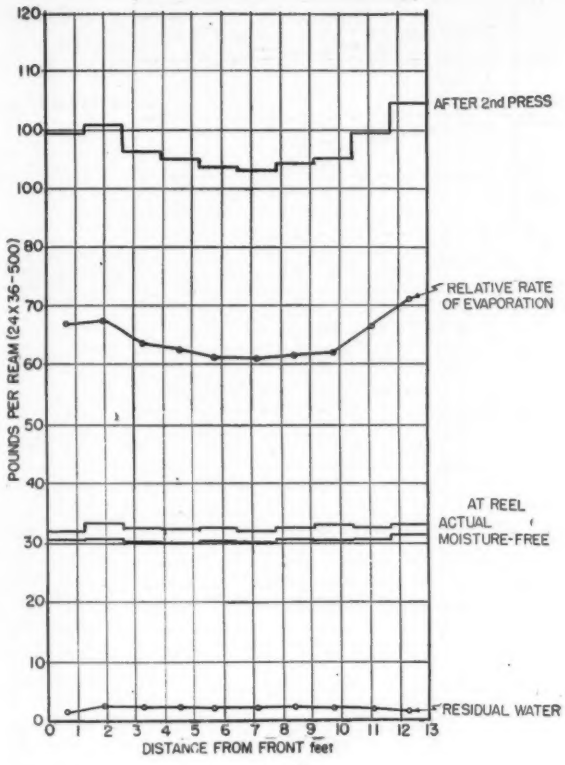

FIG. 4

Basis Weight Versus Distance from Front Edge of Sheet Following Various Machine Sections

the suction box may not be thoroughly sealed. In the latter case the sheet may stick to the felt. In some instances a mid condition between these two may occur in which the sheet alternately follows the top roll and the felt develops a fluttering action which is apt to produce wrinkles in the sheet.

Ice forms in the press channels when seal lubricating shower water temperatures fall below 40° F. The ice is usually observed at the mouth and throat of the suction box. It frequently bridges over completely for lengths of several inches, and even up to several feet. The shell commonly freezes to the sealing strips under the above conditions if it is momentarily stopped. The formation of ice in the base of the shell perforations probably occurs also. Wherever these ice formations reach appreciable size, the flow of filtrate is retarded and wet streaks occur in the sheet as with plugging by other materials. This condition has never been observed by the writer when shower water temperatures were 45°F. or more.

Press Felt

The wool cloth felt filtering medium may cause uneven rates of water removal across the sheet in several different ways. Unevenness in the unit weight of the "warp" threads, or a difference in the amount of felting, or shrinking in a band could conceivably occur. New newsprint press felts seldom display such irregularities to a harmful degree, or at any rate, the irregularities are seldom recognized with the comparatively limited control records available. A felt seldom wears out uniformly across its width. Irregularities of unit weight develop in partially worn felts.

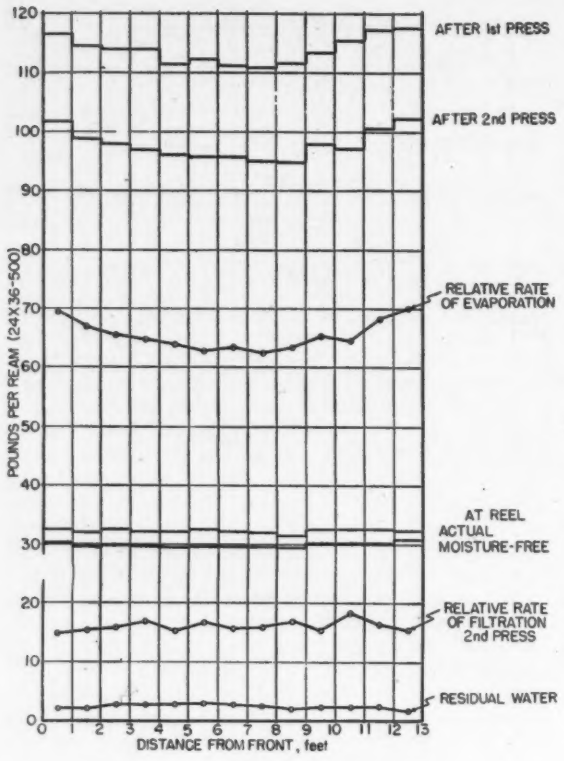

FIG. 5
Basis Weight Versus Distance from Front Edge of Sheet Following Various Machine Sections

The effect on rate of water removal is compensated to some extent by redistribution of nip pressure.

Equal distribution of the open area, and hence of water removal, in a press felt is very markedly affected by the travel of the felt. The felt is driven by friction between the bottom roll and itself. It drives the top roll and the felt rolls. The speed of the felt is determined chiefly by (a) the rotational speed of the bottom roll, (b) the "effective radius" of the bottom roll, (c) the thickness of the felt, and (d) the pressure between the felt and the roll surface.

The actual radius of a crowned roll is greater at the center than at the ends of the roll. When such a roll is subject to bending in service, the radial distance between a point on the roll surface and its axis of rotation will be substantially less than the actual radius. This radial distance is the "effective radius" influencing the speed of the felt travel. As an example, assume a press in which the bottom roll is crowned so that the amount and shape of the crown exactly matches the bending curve of the roll, when it is loaded uniformly from end to end of its face. The "effective radius" would be constant along the length of the roll. If, however, some of the weight were removed, the amount of deflection would be reduced and the "effective radius" at the center would be greater than at the ends, though still not equal to the actual radius *(6)*.

The speed of travel of the felt over the driving roll, having uniform load distribution and uniform length of "effective radius" would tend to be even across its width. However, after the reduction of weight the center of the felt would tend to travel faster than the edges for two reasons, viz. (a) the pressure between the felt and the roll is greater at the center under the new load distribution, and (b) the "effective radius" at the center of the roll is greater than at the ends. Uniformity of speed at the center and edges of the felt could be partially restored by reducing the crown in the bottom roll, by an amount on the radius equal to the difference between the lengths of the "effective radius" at the center and ends of the roll face. The amount of crown removed from the bottom roll could then be ground into the top roll. The felt would again tend to travel at equal speeds at center and ends, except for the pressure difference at those two points. Another small exchange of crown from the bottom to the top roll might be used to compensate for the pressure difference. In practice it has been found that with the usual values of k, i.e., 0.0147 ± 0.0015, the felt will travel at nearly constant speed across its width when 65% of the total crown for a pair of rolls is in the bottom roll. This is indicated by the "shute" threads travelling at right angles to the "warp" threads.

This subject of felt travel has been dealt with at length because the distribution of open area across the width of the felt is very greatly affected by it. When the shute and warp threads travel at right angles the open area between the threads is at a maximum. When the warp threads at the center of the felt travel either faster or slower than those at the edges, the perpendicular distance between the shute threads is reduced. The open area, and hence, rate of water removal, is correspondingly reduced.

A common practice for maintaining uniform travel across the width of the felt is to use one or more felt rolls having a concave or convex contour. The former is used when the felt tends to run ahead in the center as it will where all the crown is in the

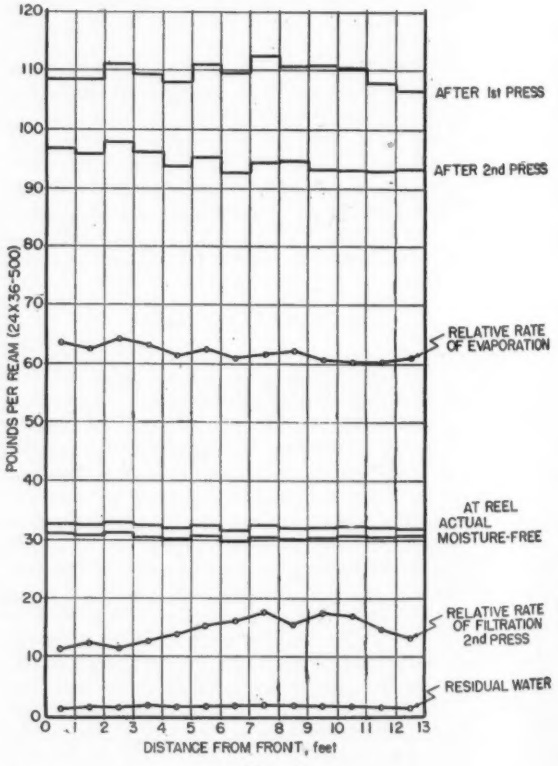

FIG. 6
Basis Weight Versus Distance from Front Edge of Sheet Following Various Machine Sections

bottom press roll. The latter, i.e., the convex contour, is used when the felt tends to lag in the center as it will where all the crown is in the top press roll. The use of a suitable division of crown between the botton and top press rolls, together with straight felt rolls, is preferable for good felt life.

It will be perceived that the operation of the press section is accompanied by many conditions which tend to produce unevenness in the distribution of moisture. Understanding the press behavior, good judgment and prompt action are necessary to maintain conditions which will deliver to the driers, a sheet containing either a uniform moisture content across its width or more commonly, a moisture content increasing uniformly from the center to the edges of the sheet.

Notwithstanding these difficult objectives, the press is very often called upon to deliver the sheet containing other distributions of moisture to match with, and compensate for, still other defective conditions of preceding or succeeding sections of the machine.

An example of a drier condition and its effect on pressing is shown in Fig. 3. This drier section exhibited an exceptionally high rate of evaporation at the front in comparison with the back. It was necessary to make compensating adjustments at the presses. These adjustments included removal of all the weight from the front levers and the addition of extra weight on the back levers, a very unsymmetrical load distribution. Various increases and decreases of roll crowns and various changes in ventilation around the drier section, particularly in the air supply, had proved ineffectual in materially altering the situation

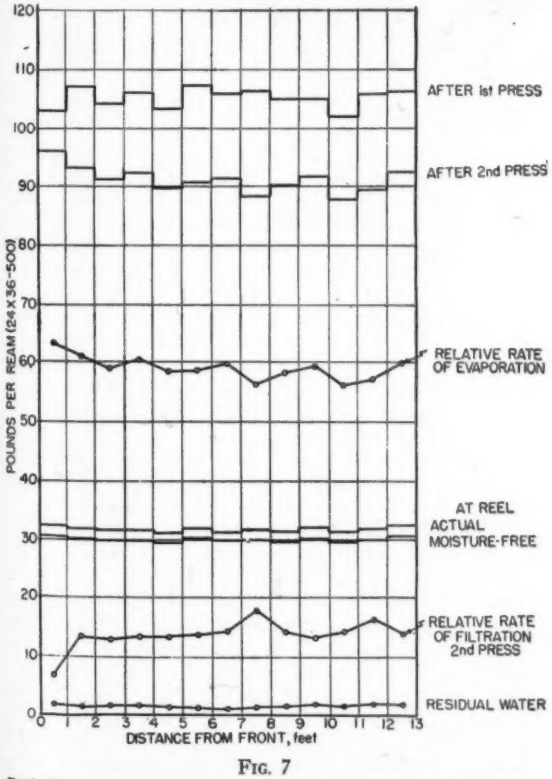
AFTER 1st PRESS
AFTER 2nd PRESS
RELATIVE RATE OF EVAPORATION
AT REEL ACTUAL MOISTURE-FREE
RELATIVE RATE OF FILTRATION 2nd PRESS
RESIDUAL WATER
POUNDS PER REAM (24 X 36-500)
DISTANCE FROM FRONT, feet

FIG. 7

Basis Weight Versus Distance from Front Edge of Sheet Following Various Machine Sections

as shown in this figure. Finally, certain alterations were made inside the drier cylinders. Following these alterations the compensation at the presses, was reduced to about normal and conditions become as shown in Fig.

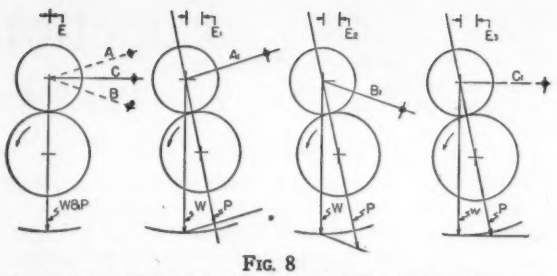

FIG. 8

Trends of Variation of Load on Nip with Different Arrangements of Press Roll Arms. Arrangement A—No Offset Pivot above Center of Top Roll. B—No Offset Pivot Below Center of Top Roll. C—No Offset Pivot in Horizontal Line Through Center of Top Roll. A_1—Offset "E_1" Pivot at Same Elevation as in "A." B_1—Offset "E_2" Pivot at Same Elevation as in "B." C_1—Offset "E_3" Pivot in Horizontal Line Through Center of Top Roll. Lengths of Lines "W" and "P" from Center of Top Roll to Points of Arrows are Proportional to the Weight Acting Through the Center of the Top Roll and the Weight of Nip Respectively.

4. Later, the amount of crown in the second press was reduced and conditions became as shown in Fig. 5. This figure represents a normal pressing and drying operation on a machine without special equipment for removing vapor from the drier pockets. It will be observed that the rate of evaporation is increasing uniformly from the center to the edges of the sheet and also that the rate of water removal at the presses is the converse which is normal press compensation on many machines.

Figure 6 shows the rate of evaporation on a similar machine equipped with a vapor absorption system in which air is blown through adjacent pockets in opposite directions alternately throughout the drier section. It will be noted that the curve for the rate of evaporation has flattened. In this particular case, the rate of water removal at the second press has not evened up correspondingly because it was compensating for the first press which was too heavily weighted having a value of k somewhat less than 0.01302.

In conclusion, attention is directed to the highly complex technical nature of the series of operations by which a sheet of paper is made and to the very meagre application of technical knowledge to the control of these processes. The few figures given in this paper indicate to a very limited degree the assistance which an adequate system of observation or testing would provide for the operators. The operation of the machine would be freed from some of the mysteries which now plague the operators. Many improper conditions would be corrected at their source, instead of being compensated elsewhere. Efficiency of operation and quality of product would be improved.

In order to obtain the type of control suggested, a method of making rapid and accurate observations of the ream weight both wet and bone dry at any point on the machine where the sheet is freely exposed, without interrupting operation is necessary. In view of the enormous advance in devices for the study and control of other operations and processes, is it too much to ask for an instrument which woud scan the running sheet and report accurately and instantly the ream weight and percent dry fiber?

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Functional Papers*

By R. H. Mosher[1] and R. S. Bracewell[2]

Abstract

The class of papers which are termed "functional" include ones which possess some specific property other than those generally associated with a paper sheet. The various functional properties and methods of obtaining them are discussed. Special mention is made of the various types of coatings which are available for the production of functional sheets and their advantages and disadvantages are briefly outlined. Mention is made of the use of laminates to obtain a sheet with additive functions and the general types of papers used by the convertors are discussed.

The class of papers which are termed "functional" include those which possess some specific function other than the ones generally associated with a paper sheet. The list of such functional papers includes those which are greaseproof, water resistant, gas or moisture vaporproof, scuffproof, heat sealable, magnetically or electronically sensitive, and electrically conducting.

A sheet of bleached kraft, sulphate, or sulphite may be used either as a message carrier or a bag stock. As a message carrier, such sheet would be required to possess specific properties, but any improvement in these properties, such as through the application of a clay or casein coating, would be for the purpose of improving the ink receptivity, gloss, or smoothness and would not alter the original purpose of the sheet. The bag prepared from such a base stock would be very effective for the transport of vegetables, smaller packages, or dry solids, but if a meat, greasy product, or wet material were carried, the bag would soon become saturated with blood or water and break down under abrasive action. If the grease should soak through to the outside of the bag rancidity would probably occur, caused by the absorption of oxygen and light. In practically all cases where a food product is pressure or vacuum packed or must be held at constant moisture content an untreated paper will not do the job because of the negligible resistance to the transfer of gas or moisture vapor offered by the sheet. The papers which have been treated so as to overcome these inherent disadvantages are the functional papers and at the present such products are invading fields of application which have been long sacred to the metals, glass, and plastics. In many cases, furthermore, they are doing better jobs at a lower unit cost.

Since the paper sheet is produced from cellulose fibers, its physical properties to a great extent are those of these fibers. The strength properties are dependent upon the fiber length, method of preparation, processing treatments, and technique of sheetmaking. The functional properties, on the other hand, are dependent upon the fact that the sheet was produced from cellulose. It can be written and printed upon because the cellulose is receptive to ink. Since the cellulose molecule contains hydroxyl groups the paper is very water sensitive and hygroscopic. It will absorb water rapidly, swell, and unless treated to produce wet strength, will soon lose coherence and rapidly disintegrate under slight mechanical action. Since it is composed of a fibrous structure with air spaces between the individual fibers, it is permeable to gases. This is especially true with water vapor, which cannot only pass between the fibers but the water also can associate with the hydroxyl groups and pass through and along the fibers themselves. The spaces between the fibers also serve to transmit fats and grease even though such materials are not compatible with the cellulose itself. Cellulose is a nonconductor of electricity, nonmagnetic, and unaffected by electronic impulses.

The Preparation of Functional Papers

It is possible to impart some functional properties into the sheet by altering the form of the cellulose itself. By extensive beating and hydration of the fiber, such as is carried out in the production of a glassine sheet, a paper can be obtained which has to a large degree lost its fibrous structure. In the resulting sheet, the fiber to fiber bonding has been greatly increased, the amount of interfiber space has been drastically reduced, and a number of changes have been made in the direction of "functional properties." The sheet is smoother and has greatly improved wet strength and scuff resistance. It has assumed some degree of water resistance and is practically greaseproof. The moisture vapor transfer rate is still very high, however, and under prolonged soaking the sheet softens and can be easily disintegrated. Another method of obtaining similar properties involves "parchmentizing," or treating the base sheet after production with chemical agents which tend to gelatinize the fibers. Approximately the same functional properties are produced as in the glassine, except that with the parchment sheet, the resistance to defibering on extended soaking in water is much better. In general, the glassine is only produced in the low basis weight range, while the parchment is produced in heavier stocks.

In many cases the physical properties or cost requirements of a sheet are such that it is not possible to use glassine or parchment papers as the basis for production of the desired functional sheet. Wherever possible, however, the converter will start with a sheet possessing as many of the required properties as possible.

In most cases, the converter will obtain a base stock which possesses the required physical strength properties and then by the proper treatment impart the remaining functional requirements using a treating or coating operation. By treating or saturating the paper with a solution, emulsion, or dispersion of the proper resin, so that the open spaces between the fibers are to some extent filled in, not only can water resistance, scuff resistance and greaseproofness be greatly enhanced, but where the material is compatible with the cellulose, the fiber to fiber bonding is improved with a resulting increase in the physical strength properties of the sheet. Where the saturating material is not compatible with the cellulose, such as with a dry waxing operation, the functional properties will be obtained, but the overall physical strength

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[2] Member TAPPI; Vice-President, The Marvellum Co., Holyoke, Mass.

properties of the sheet will be reduced. In both of these cases the moisture vapor transmission of the sheet will probably be quite high, since there are free cellulose fibers on the surface and down through the mass, and they will transfer the moisture through the sheet. The water resistance of the sheet will be tremendously increased.

Coating

The other method of treating which is available for producing functional properties is to coat the sheet with some compound which will impart the desired functions. Such a coating can be composed of a synthetic resin or plastic compound, waxes, asphalt, or some combination of materials which possess the desired characteristics. The applied layer may be continuous or noncontinuous, depending upon the properties required and the method of application. If greaseproofness, heat sealability, water resistance, scuffproofness, etc., are desired either variety of film is applicable, but if gas or moisture vapor resistance is necessary, only the continuous type coatings can be used.

The raw stocks which the converter uses to produce his functional sheet may be previously untreated or may have already been processed to some extent. When it is possible to do so, the converter will use a paper which has been treated to produce high wet strength and one which has been coated or calendered so that when the functional film is applied it will remain on the surface and not sink into the sheet any further than is required for secure anchorage. In some cases the converter will start in with a parchmentized or glassine sheet which already possesses some of the functional properties which are necessary in the finished sheet.

The coating may be applied by the use of any of several techniques, and each has advantages and disadvantages. The oldest and best known method involves the use of lacquers or solvent coatings. Using this method and utilizing the appropriate resin base continuous films can be produced which offer good moisture vapor and gas transmission resistance, excellent greaseproofness, heat sealability, scuff resistance, and water and oil resistance. Special properties such as electrical conductivity, magnetizability, fluorescence, and electronic sensitivity can be obtained by incorporating the proper types of pigments or compounds with the lacquer. The major disadvantages of this method of coating are the difficulty of producing bubble free coatings in the thicker gages, the high viscosities at low solids content, and the cost of eliminating and recovering expensive solvents.

The second coating procedure involves the use of water borne emulsions or dispersions of synthetic resins and other film forming compounds. The materials can be applied to the paper using any of the well known coating techniques with proper adjustment of the properties of the dispersion for adaption to any specific application. This method possesses the advantages of a cheap, nonrecoverable solvent, no fire hazard, and since the solution viscosity is not dependent upon the chain length of the resinous constituent, high total solids can be utilized. In general, the water wicking into the sheet immobilizes the coating and the water is easily removed since there is no formation of a continuous resin film to cause entrapment until the water has practically all been removed. In most cases a short treatment at temperatures in the range of 400°F. are required, because continuous films are only laid down by a few specific types of resins, and in most cases the coating must be fused after the water has been evaporated off. Even the use of sufficient heat to produce fusing, however, is not generally sufficient to obtain a completely continuous film and in many cases the water sensitive emulsifying agent remains in the film. The gas and especially the moisture vapor transmission of sheets produced by this technique are generally higher than those produced by the lacquer or solvent method using the same base resin. Another disadvantage involves the swelling and distortion of the sheet which is encountered when using water as a solvent.

The third procedure for the production of coated functional papers involves the use of hot melts. There are two temperature ranges for hot melt application, one down in the range of wet waxing (between 140° and 250°F.) and the second in the high temperature range (above 300°F.). Hot melts can be produced which are based on waxes, natural resins, and cellulose base plastics, and the use of synthetic resins has been widely investigated. In most cases, however, in order to obtain the proper viscosity in the melt and still not have too much tack and softness in the coating, low viscosity synthetics must be used, so that the resulting coatings lack somewhat in strength and flexibility. Excellent continuous films possessing such properties as high gas and moisture vapor resistance, heat sealability, greaseproofness, scuffproofness, pigmentation properties, and water and oil resistance can be obtained. It is only rarely, however, that all can be obtained with any one material. The use of any type of solvents is unnecessary with the resulting elimination of drying and solvent recovery. A new development involves the use of high solids lacquers (70% solids) with high boiling solvents which are applied hot. The compounds produce the advantages of lacquer coated sheets using a modified hot melt technique.

One of the most recent developments in the coating field is the use of organosols or plastisols. These compounds contain the minimum amount of a solvent in which the resin is not soluble and are in effect highly concentrated dispersions. Their major advantage is that they produce relatively low viscosity coating mixes at room temperatures. The solvent can generally be removed at medium temperatures and then a short high temperature bake is applied to fuse the particles and produce the continuous film. Since a solvent less polar than water is generally used there is no swelling and resulting distortion of the cellulose sheet. It is felt that this type of compound will fill the gap between the resin dispersions and the hot melts. When using them the properties of low moisture vapor and gas transmission, heat sealability, greaseproofness, scuffproofness, and water and oil resistance can be obtained. In general, however, only relatively thick coatings can be applied.

A new war development in the functional paper field involves the use of the Dri-Film process, wherein a thin film of silicone resin is deposited on the surface of a sheet of paper. The sheet is passed through a chamber containing the silicone resin vapors and the resin is precipitated on the surface of the sheet through reaction with its residual moisture. Such a film is not continuous, however, and although the sheet possesses excellent electrical, water, and oil resistance, it offers no gas or water vapor resistance.

It can be seen from the foregoing discussion that it is not generally possible to obtain all of the desirable properties using any one method of coating or using one specific treating or coating compound. This

is even more true when one considers the specific requirements demanded in a sheet and then investigates the various types of compounds and available techniques for application. Some synthetic film-forming resins are incompatible with natural resins and waxes and cannot be applied by the hot melt procedure and still obtain functional films. Other compounds are only soluble in corrosive or dangerous solvents and are limited to application using dispersion or organosol techniques. If the resin can be dissolved in a solvent-plasticizer mixture, a choice of roll or knife coating technique must be made, depending upon the equipment available, the necessity for solvent recovery, and the film thickness desired. It is common practice, therefore, to prepare laminations using two or more treated or coated papers, each of which contributes some specific property to the finished sheet, since in products such as these, most of the functions are additive. The only requirement is that the proper functional sheet be placed in the correct position (i.e. the greaseproof side placed where it will contact the grease). When one uses laminations, there is also the added advantage of being able to use the laminating adhesive to supply a functional property, such as moisture vapor resistance. An example of such a sheet would be a kraft base sheet coated with a heat sealing, greaseproof, coating which is laminated with a moisture vapor resistant wax to a coated and printed bleached sulphite top sheet (for decorative or legendary effect).

Conclusions

Although papers with limited functional properties are at present being produced in quantity by several of the large tonnage producers using machine coating operations, there is still a tremendous field for specialty mills, which will perhaps even use the sheet of the volume producer as the base for their further converting operations. The greaseproof and heat sealing sheet of the large producer may thus be further processed so as to include gas and moisture vapor resistance and an attractively printed surface. The sheet can now be processed directly into food packages or wrappings for metal parts with no further finishing or converting operation required. Such a sheet eliminates the necessity for the packager to do his own printing, and he can limit his operations to packaging the product for shipment.

Delaware Valley Section TAPPI Discusses Protective Coatings

The Delaware Valley Section met as usual at the Engineer's Club in Philadelphia on Friday, April 5th. An unusually good attendance over-taxed the regular dining facilities of the Club and for the meeting that there was standing room only.

Mr. Bixler, the Section Chairman, appointed Joseph A. Paciello of the Philadelphia Sales Office of E. I. du Pont de Nemours & Co., Philip Goldsmith of Pusey & Jones Corp., and Donald Newcomb of the Riegel Paper Corp. to act as tellers for the returned mail ballots in the election of next year's officers. The following officers were elected: Chairman—John Macadam, National Vulcanized Fibre Co.; 1st Vice Chairman—Kingdon R. Watt, Curtis Paper Corp.; 2nd Vice Chairman—John Wiedner, Container Corporation of America; Secretary-Treasurer—Lois V. Hans, Hercules Powder Co.; and Executive Committee—F. W. Brainerd, Scott Paper Co., A. L. M. Bixler, Riegel Paper Corp.

The section lost two members recently through death—John E. Gambol and A. W. Wickham of MacAndrews and Forbes Co. Mr. Wickham was a charter member and had been active in this section for many years.

Mr. Kingdon R. Watt, Chairman of the Program Committee, introduced Mr. John Dieffenderfer of the PMC Department of Hercules Powder Company who acted as chairman for the technical section of the meeting. Mr. Dieffenderfer briefly enumerated the leading materials which form the basic part of protective coatings of various types.

Dr. W. E. Davis, of the Virginia Cellulose Department, gave a brief summary of the source and processing of cotton linters, the base materials for chemical cellulose derivatives.

Mr. J. K. Speicher of the Cellulose Products Department discussed the application of various types of protective coatings which might be classified as paints, varnishes, or lacquers to paper or board stock and enumerated advantages and disadvantages of the different types of applications. Mr. Speicher listed the outstanding characteristics of nitro-cellulose, cellulose acetate, ethyl cellulose, and parlon in protective coating lacquers and indicated various ways of adjusting formulations to fit specific demands of a particular job.

Mr. J. G. Little of the Synthetics Department discussed the modification of lacquer formulations with synthetic resins to meet extended requirements for this type of coating.

Among those attending the dinner were: Edw. J. Albert, W. E. Anderson, Nelson P. Arigo, E. R. Baublitz, H. L. Becher, Thomas L. Benson, Jr., John R. Biegner, Richard T. Bingham, A. L. M. Bixler, George K. Boger, Jr., Alan R. Boyd, H. C. Brill, Samuel M. Bratton, S. G. Briscoe, K. W. Britt, Arnold M. Brown, Philip G. Bruno, J. W. Burke, Charles W. Carr, Jr., Cornelius F. Carr, John Carson, Harvey P. Cannon, J. D. Clark, R. L. Colvin, C. M. Connor, L. W. Crouse, Thage Dahlgren, Edward DeLauter, George H. Detwiler, J. C. Dieffenderfer, W. P. Dohne, J. E. Doyle, James C. Eaton, Jacob V. Edge, Fred Elliott, August S. Erspmer, H. J. Farra, George A. Farrah, James A. Foreman, Maurice L. Gallagher, Jr., H. L. Geer, E. N. Glauner, Frederick W. Goetz, Philip H. Goldsmith, Ralph E. Green,

L. V. Hans, H. Harnden, J. C. Harper, Jr., Philip H. Henby, H. F. Hoffman, Harry Hulmes, Sewell T. Jamison, Mary Frame Jones, Harry Kinne, Andrew J. Kleiler, E. A. Kronmiller, R. H. Laff, W. H. Lapp, C. H. Lighthipe, J. G. Little, John Macadam, Felix A. Mairani, Geo. B. Martin, C. S. Maxwell, A. L. Mayer, D. Kenneth McCurdy, E. P. McGinn, Louise E. McGrath, H. C. Merritt, A. K. Mills, Jr., George V. N. Morin, L. M. Nauman, D. H. Newcomb, E. Atlee Ney, J. A. Paciello, Emil R. Padavic, Warren T. Palmer, J. C. Pullman, F. W. Rapp, L. A. Redlin, Robert Reider, A. W. Redlin, Charles H. Rybolt, Allan Schenck, Ralph W. Shaffer, Edward A. Shallcross, Sr., Charles A. Shubert, M. H. Simon, L. Jay Smith, J. K. Speicher, Jack Sproute, Oliver S. Sprout, W. D. Stephenson, Howard H. Street, Geo. M. Suydam, T. W. Toovey, G. Ray Tomlinson, D. R. Traill, James Traill, Roy H. Underdown, Earl A. Walton, G. C. Walton, Kingdon R. Watt, A. E. Waugh, A. H. Webber, John P. Weidner, Kenneth S. Whisler, R. R. Wiggins.

William R. Willets, Paul K. Wolper, Paul H. Yoder, F. C. Kereztany.

Insect Resistance of Packages, Paper, and Paperboard*

TAPPI Suggested Method T 473 sm-46

This method is for testing the resistance of packages, paper, or paperboard to insects. The larvae of the cadelle, *(Tenebroides mauritanicus* L.) and the adults of the lesser grain borer *(Rhyzopertha dominica* F.) are selected as test insects. Both insects are widespread and both, especially the cadelle larvae, have unusual ability in penetrating packaging materials.

Apparatus and Materials

1. *Test Insects.* A hundred adult insects of either species, preferably more of the cadelle, which breed rather slowly, will start a small colony. The lesser grain borer is readily obtained in stores of grain in the South and the cadelle in quantity in most parts of the country from bins of farm-stored wheat. A commercial source of supply for the insects is California Insectaries, Inc., 1612 W. Glenoaks Blvd., Glendale, California. If proper care is given the colonies, one lot will produce an inexhaustible supply. The lesser grain borer can be reared in wheat which has a moisture content of about 12%, in any type of available container. The cadelle is not easily reared in small containers because of its cannabalistic habits, but it may be successfully reared in a large metal can of 15-gallons or more capacity filled with rolled barley or wheat, the bottom few inches of the grain being dampened to make a wet mush. A temperature of about 27 to 30°C. (80 to 86°F.) and fairly humid conditions (65 to 90% R. H.) are favorable to and will speed the development of both insects.

2. *Test Chamber* (for Method A). A screened-top metal tank 3 by 2 by 1 feet, or other convenient size, containing a 2-inch deep layer of infested wheat.

If about 200 lesser grain borer adults are added, the chamber will be ready for immediate use and the colony will last indefinitely, provided that the grain is renewed occasionally.

About 60 to 100 full grown cadelle larvae added from the main breeding can will make the chamber ready for use. The larvae will require renewal from time to time as they are transformed to adults, die, or are removed from the tank with the test specimens.

The absence of insects of either variety crawling over the test specimens indicates the need for adding more insects.

3. *Specimen Holders* (for Method A). A number of slip-cover seamless drawn ointment or pill metal boxes with a circular hole approximately 1.5 inches diameter cut in each lid. A supply of waterproof adhesive (Duco or similar) is also needed.

4. *Specimen Holders* (for Method B). A number of pairs of shallow glass crystallizing dishes about 2½ inches (75mm.) in diameter and ½ inch deep. A quantity of ¾-inch wide transparent adhesive tape for joining them together mouth to mouth.

5. *Larvae Bait.* A supply of whole wheat flour or shorts or middlings used as "bait" for the larvae.

6. *Standard Comparison Paper.* A supply of standard paper for comparison with the samples under test. Pieces of machine-finished northern kraft having a basis weight of 80 pounds, 24×36—500, are recommended.

7. *Cabinet or Room,* maintained at 28.5 ± 1.5°C. (83 ± 3°F.) and 75 ± 10% relative humidity. For Method B, a desiccator containing a saturated solution of C.P. sodium chloride with excess crystals may be used, placed in a cabinet with temperature controlled at 28.5 ± 1.5°C.

Test Specimen

Prepare at least three and preferably five specimens from each sample to be tested, taken in such a way as to be representative of it.

For Method A: The preferred test specimen is the completed package for which the material is to be used, filled with the whole wheat flour or shorts. For testing individual sheets, cut disks of such a size as to cover the opening in the lid of the sample holder with an overlap of about ⅛ inch around the edge. Fold each specimen along the center (preferably before cutting into a disk) parallel to the machine direction, and if two sided, with the normal outer surface on the outside of the crease; subject the crease to a load of 6 pounds per inch (1 kg. per cm.) for 10 to 15 seconds; then similarly fold and press in the cross direction (the outer surface again being outside the crease), forming a crossed crease in the center of the specimen.

For Method B: Crease the test specimen as described and cut into disks having approximately the outside diameter of the test dishes.

Procedure

METHOD A.

If the sample is not in the form of a finished package, prepare test assemblies as follows: Remove the lid from each tin box and cement the creased specimen over the hole on the inside of the lid, applying the adhesive all around the specimen, taking care not to smear the exposed surface, with the outside surface of the specimen facing the outside of the lid. Allow all the solvent to dry from the adhesive. Add sufficient bait to cover the botton of the tin box to a depth of ⅛ to ¼ inch and put on the cover with the attached specimen. Prepare also the same number of test assemblies using a second sample with which the first is to be compared or if not, or in addition to, assemblies using the standard comparison paper. It is preferable to include the standard material with each test or at frequent intervals, to ensure that overall conditions do not change significantly. Place the boxes, lids down, or the finished packages, on the layer of infested wheat in the tank and keep the tank in a room maintained at 28.5 ± 1.5C. and 75 ± 10%

* This method is suggested by the Packaging Materials Testing Committee as being the most suitable to date for the purpose. It is *not,* however, a TAPPI Standard. Criticisms are earnestly requested and should be sent promptly to R. G. Macdonald, Secretary, Technical Association of the Pulp and Paper Industry, 122 East 42nd St., New York 17, N. Y.

Grateful acknowledgment is made for his contribution in preparing the method to Dr. Richard Cotton, Senior Entomologist, Bureau of Entomology and Plant Quarantine, U. S. Dept. of Agriculture, Manhattan, Kansas.

relative humidity. Because the insects prefer the milled cereal food in the tin boxes, they will cut through the material being tested unless it is sufficiently repellent to resist penetration. Examine the boxes daily and record the number of days it takes for an insect to cut its way through.

METHOD B:

To one of a pair of flat glass dishes, add enough bait which has been conditioned at 28.5 ± 1.5°C. and 75% ±10% relative humidity to cover the bottom ⅛ to ¼ inch deep and, with a little glue, paste a specimen over the top of the dish with the outside surface of the specimen facing outside. Place only one well grown cadelle larva (about ¾ inch long) or two or three lesser grain borer adults in the second dish or on the specimen and cover the specimen with the inverted second dish, using a strip of adhesive tape to fasten the two dishes together. Prepare similar assemblies with standard or other comparative specimens. Keep the assemblies at 28.5°C., preferably in an atmosphere at 75% R.H.

The insects will attempt to cut through the specimen to reach the food below. Record the number of days required for the insects to penetrate the specimens. If necessary, replace any insects which die. Normally, however, they will live quite awhile without food. Complete visibility with this test assembly makes examination easy and rapid.

Report

Report the result in terms of the average number of days elapsed before complete penetration of the specimen occurs, and state the method (A or B), the kind of insect used, the average time taken to penetrate the standard or a comparative specimen under the same conditions, and a complete description of the sample material and of the standard material used for comparison.

Kalamazoo Valley TAPPI Discusses Stock Preparation

Paper mill beaters have been called upon, in the past, to do a number of things for which they were not originally intended. Now machinery to handle these operations more efficiently and to take the heavy load off beaters has been perfected and is offered on the market. R. F. Vokes, representative of the Dilts Machine Works, Fulton, N. Y., told members of the Kalamazoo Valley section of the Technical Association of the Pulp and Paper Industry of these developments Thursday evening. The meeting, a dinner session at the Columbia hotel, was attended by 60 members and guests.

Those present included: P. Applegate, P. R. Anderson, D. D. Bachelder, Clifford Beebe, P. P. K. Bwig, Ray Barton, Harry C. Bradford, Albert Borowski, Chamberlain, C. T. Colgren, C. W. Cassell, A. W. Cole, G. F. Des Autels, J. A. Dean, D. R. Erickson, M. F. Flotow, Charles E. Gardner, M. Galbraith, O. F. Fischer, R. C. Germanson, James J. Harrison, C. A. E. Harding, John Hotop, L. P. Hill, F. R. Hamilton, W. F. Hathaway, Stephen Kukolich, Bill Kirkpatrick, K. B. Latimer, Frank Libby, L. H. LaLiberte, C. W. Lillie, F. C. Mulford, R. T. Mashburn, Lee Mimms, D. W. McArthur, Charles Olmstead, Al Perlick, Robert H. Pete, Frank A. Root, Carl Roglitz, A. L. Sherwood, B. E. Sooy, Paul J. Thoma, Walter Wolfe, R. F. Vokes, Jim Wise.

TAPPI Western New York Group Discusses Printing

The April meeting of the Western New York Group of the Empire State Section of the Technical Association of the Pulp and Paper Industry was a dinner meeting held at the Prospect House, Niagara Falls, N. Y., Wednesday evening, April 10, 1946.

E. A. Aitken, Superintendent of the Press Room, Bryant Press, Ltd., Toronto, spoke on printing problems. Being a practical printing man he was able to present this subject from practical experience. He spoke principally on the subject of four-color letter press printing and emphasized the fact that paper makers and printers should work in closer collaboration to make paper adaptable for the printers' use.

He showed many examples of different kinds of paper used in printing and also the different types of color work used on these papers. The uniformity of the particular type of paper, he pointed out, is a determining factor in the quality of the finished product. Variations from sheet to sheet of one type of paper may produce an almost unacceptable printed product.

Moisture proof wrapping of paper by the manufacturer is a great help to the printer as it reduces to a minimum the amount of wavy edge and buckle paper. This type of paper causes much extra work on the presses in order to produce a satisfactory job. He explained the methods used to make it possible to use these types of papers on the presses.

Another difficulty encountered in printing is the selection of the right type of paper for the particular job in mind. An important factor to be considered is the opacity of the paper.

He explained how some grades of paper cause much lost time on the press. One example of this was a bulking novel paper which has such a loose surface that fibers from it fill up the plates, necessitating frequent wash-ups. Another paper of practically the same grade but with a much harder surface can be run on the press for a much longer period of time without the necessity of washing-up.

Mr. Aitken showed samples of synthetic printing plates which were very satisfactory from his experience.

Aitken concluded his talk with a discussion of the purpose of printing clinics. Mutual benefit to both the printer and the paper maker usually results from these clinics.

The next meeting of the Technical Association of the Pulp and Paper Industry will be held at the Prospect House on May 8, 1946. Mr. F. O. Sundstrom of the Heller and Merz Department—Calco Chemical Division, American Cyanamid Company will speak on "Influence of Rosin Size on Acid Colors". A color movie titled "Progress of an Industry", will be shown.

Those present included: E. A. Aitken, Fred Ayers, Floyd Bassett, W. E. Beazley, Hans Boos, Florian J. Bouley, H. F. Brown, Dr. John Campbell, P. T. Charest, Howard J. Cronin, John J. DeJough, H. E. Duston, Raymond B. Embury, R. J. Farley, Fred Heil, Geo. S. Henderson, J. A. Hoffmeister, Walter Jacobs, Gerald J. Keller, John Morrison, A. H. Nadelman, S. C. Nagel, George E. Norton, Edmund S. Nowicke, Lewis M. Pfister, G. H. Rand, Jr., P. R. Rolleston, Robert D. Rusch, Salvatore M. Scaletta, Arthur J. Smith, H. J. Smith, B. J. Staneslow, Dr. K. A. Taylor, Frank S. Tolmon, Clinton O. Webber, F. A. Webster, Vernon Woodside, J. W. Youngchild.

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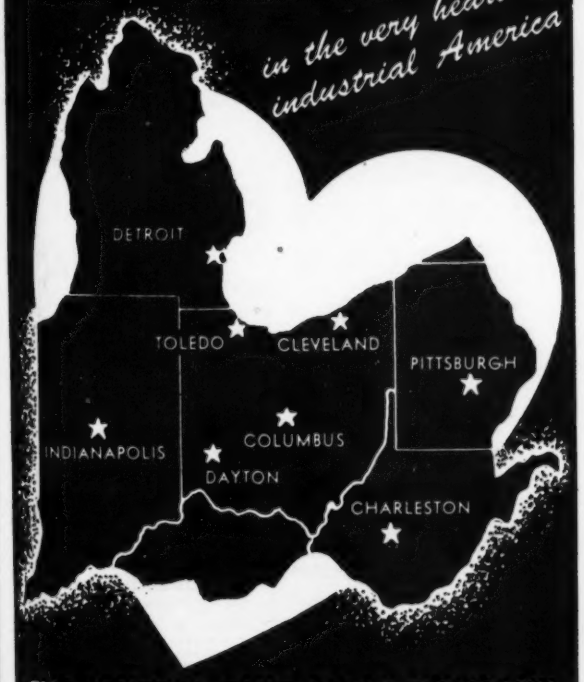

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MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, April 17, 1946.

BLANC FIXE—Prices on blanc fixe continue unchanged. Demand is reported fair. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—All-over current demand continues active. Supply situation is reported fair. Quotations are unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots, at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound, f.o.b. shipping point. Imported 24 cents.

CAUSTIC SODA—Demand continues heavy. Production large, but deliveries slow. Market tight. Supply of drums short. Solid caustic soda is quoted at $2.30 per 100 pounds; flaked and ground is quoted at $2.70 per 100 pounds.

CHINA CLAY—Quotations on china clay are unchanged. Current demand is reported moderate. Supply short. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Supply adequate to meet heavy demand. Paper requirements fully met. Quotations unchanged. Chlorine is currently quoted at $1.75 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—No offerings and sales. "G" gum rosin is quoted at $6.74 per 100 pounds, in barrels, at Savannah; "FF" rosin at $6.70 per 100 pounds in barrels, at New York; seventy per cent gum rosin size at $6.95 per 100 pounds, f.o.b. works.

SALT CAKE—Prices on salt cake are reported unchanged for the current week. Current demand is relatively heavy. Domestic salt cake is quoted at $15 per ton, in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—Heavy demand continues for all-over requirements. Supply short. Bulk lot shipments steady. Bagged lots still slow. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.95; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Corn market restricted due to small supply. Prices steady. Starch prices continue unchanged. The pearl grade is quoted at $3.72 per 100 pounds; powdered starch at $3.83 per 100 pounds; all prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand reported steady. Supply situation improving. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.25 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is currently quoted at $1.75 per 100 pounds, in bags, at works.

SULPHUR—Quotations on sulphur continue to conform to prevailing market prices. Demand active. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price at Gulf Ports is $17.50 per long ton.

TALC—Prices on talc continue unchanged. Demand good. Domestic grades are currently quoted at from $16 to $30 per ton at mines; Canadian at $30 per ton.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—			
Roll, contract	*$67.00	@	—
Sheets	75.00	@	—

* OPA Maximum Price.

Kraft—per cwt.—Carload Quantities Zone A, Delivered			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag	*4.375	"	—

* OPA Manufacturers' Prices.

Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—

Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—

Paper Towels, Per Case—			
Unbleached, Jr.	2.20	"	—
Bleached, Jr.	3.20	"	—

Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila 35 lb.	6.00	"	7.00

Boards, per ton—			
News	*$54.00	@	—
Chip	*$54.00	@	—
Spl. Mia. Ll. Chip	*65.00	@	—
White Pat. Coated	*79.00	@	—
Kraft Linera 50 lb.	*74.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@	$15.50
No. 2 Glossy Coated	12.40	"	14.00
No. 3 Glossy Coated	11.60	"	13.25
No. 4 Glossy Coated	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.	9.35	"	10.75
A Grade S. & S. C.	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. C.	9.10	"	10.50
C Grade E. F.	8.55	"	9.75
C Grade S. C.	8.80	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C.	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers' Prices, Less Freight. Not Exceeding OPA Allowances.

Bl. Softwood Sulphite	$86.00
Unbl. Softwood Sulphite	74.00
Bl. Hardwood Sulphite	83.50
Unbl. Hardwood Sulphite	71.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich	72.00 @ 83.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphite	83.00
S. Semi-Bleached Sulphate	71.00
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	76.00
Unbl. Soda	72.00
Groundwood	50.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.00
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.25*
Silesias No. 1	—	"	5.75*
New Unbleached	6.75	"	7.50*
Blue Overall	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

* OPA Maximum Prices.

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Old Rags

White, No. 1—			
Repacked	*3.80	@	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Thirds and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.30	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

Pre-War Quotations

All Prices Nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.25	@	3.30
Wool Tares, light	3.25	"	3.50
Wool Tares, heavy	3.50	"	3.75
Bright Bagging	3.25	"	3.50
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	1.50	"	—

* OPA Maximum Prices.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Mixed Books	1.10	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Mixed Ledger, colored	2.00	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.95	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	1.10	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17¼	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¾
Light Silesias	.05¾
Black Silesias, soft	.03¾
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable Shredding	.01¾
Fancy Percales	.04¾
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¼
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1—Repacked	3.80	@	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	@	3.50
No. 1 Clean Bright—			
Sisal Strings	.04	"	—
No. 2 Clean Bright—			
Sisal Strings	.03	"	—
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
South America	—	"	3.25

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—
Misc.	2.15	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Ledger, colored	2.00	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.40	"	—
Overissue News	1.00	"	—
No. 1 News	1.00	"	—
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	—	"	3.65
New Zealand Wool Pouches	—	"	3.50
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Prices.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¾	"	.05
New White No. 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¼
Underwear Cutters, Bleached	.06¼	"	.06¼
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03¾
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05¼	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03½	"	.03¾
New Canvas	.06¼	"	.06½
B. V. D. Cuttings	.06¼	"	.06½

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.85	"	—*
Quality B	1.80	"	—*
Quality C	.95	"	—*
Old Manila Rope	5.75	"	—*

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—